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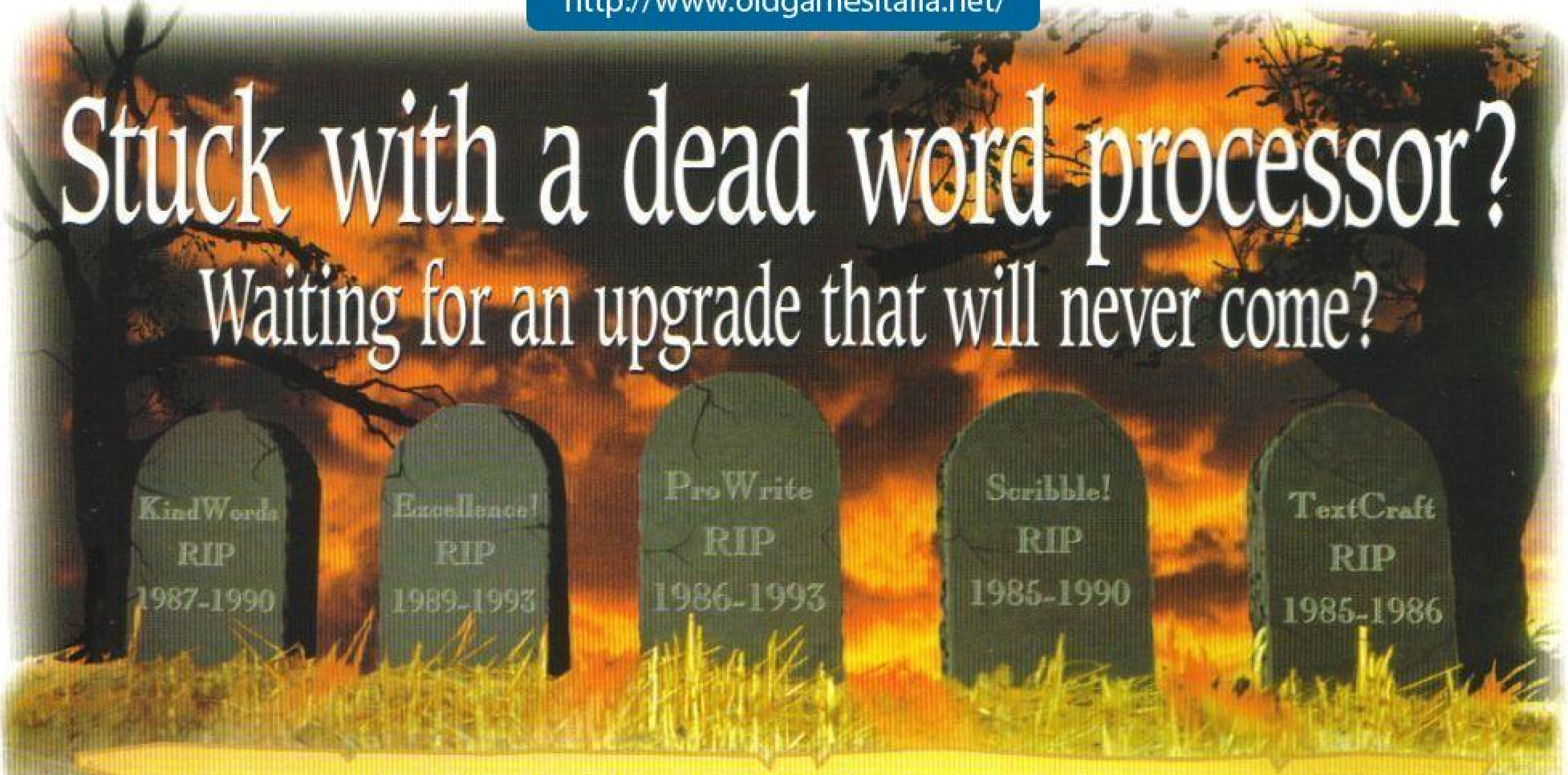

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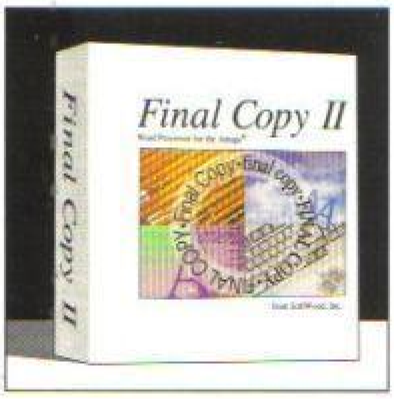

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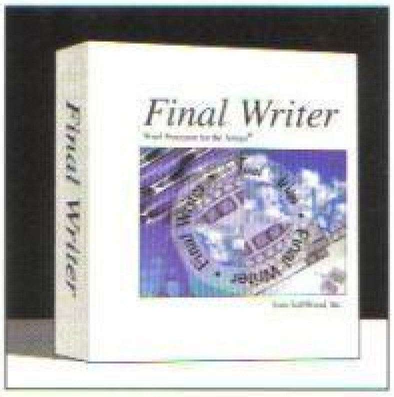

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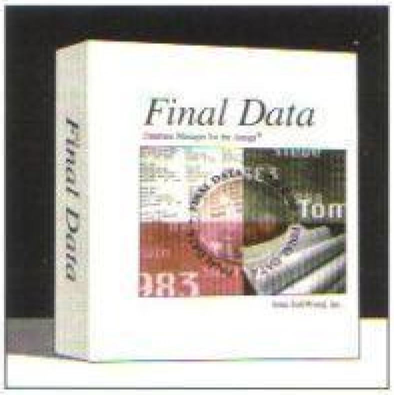

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FIRST IMPRESSIONS

"The worms crawl in, the worms crawl out . . . "

I've been waiting until our print deadline to write this column because I was hoping that the news we've heard this week would turn out to be a molehill, not a mountain. Plus, I'm trying to be kind to my blood pressure.

In case you hadn't heard, things in the Commodore liquidation proceedings took the strangest twist in an already bizarre tale when it was reported that two very familiar reptiles had climbed back out of the primordial ooze possibly to play a role in the case. I say "possibly" because that's what we were waiting to hear as this issue went to press. (For a full report on the re-emergence of—dare I say it—Irving Gould and Mehdi Ali in the Commodore case, see "Overscan," p. 4, in this issue.)

Now, if Irving and Mehdi wind up crawling back to where they came from without a ripple, that's fine—it will have cost us only a week or two in proceedings where delays have become SOP. But if they succeed in throwing a monkey wrench into the resolution of this case, they may achieve something even they couldn't cause when they were running the company (i.e., into the ground) themselves—killing off the Amiga.

The prospect of having even part of the liquidation come under the jurisdiction of US bankruptcy courts seems to be making our old friends just a little nervous. It makes a person wonder if the stricter, twelve-month liability period for the actions of former company executives under US law (as opposed to three months in the Bahamas) has some hidden significance. While we certainly wouldn't care to speculate in print about such a matter until the entire situation is brought to light—and those involved get to explain their actions—I bet there are more than a few Amiga owners, not to mention members of the Commodore Shareholders' Movement, who might be willing to venture some conclusions of their own.

If (and this is still a very big "if" as I write this) Irving Gould and Mehdi Ali succeed in significantly delaying the proceedings by filing an objection to the liquidators' plans for resolving this mess, it would be a tragically ironic outcome to this sorry affair. Legal representatives for the liquidators, Commodore's creditors, and the parties seeking to purchase the rights to the Amiga were on the verge of working out a very difficult, hard-fought settlement to the case. Any further delay—especially from the corner that brought us to this impasse in the first place—may well have dire consequences for the future resurgence of the Amiga.

Let's hope the perpetrators of the decline of the Amiga will not be allowed to finish what all their mismanagement and shortsightedness failed to achieve. Long live the Amiga!

Daniel Sullivan

Daniel Sullivan
Editor in Chief

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OVERSCAN

News, New Products and More

FORMER COMMODORE EXECS MAY DELAY LIQUIDATION PROCEEDINGS

As this issue was going to press, *AmigaWorld* learned that former Commodore executives Irving Gould and Mehdi Ali may try to block a settlement proposed by the liquidators in the Commodore bankruptcy proceedings.

In addition, it was reported that two new parties may enter the bidding process—joining CEI and the former management team of Commodore UK.

In early February, *The Philadelphia Inquirer* reported that the liquidators had worked out an accord with Commodore's creditors that would clear the way for the purchase of the company. Under the terms of the accord, part of the liquidation would be adjudicated under Bahamian law and part under US law.

That, however, raised the possibility of a jurisdictional challenge from former Commodore company executives Gould and Ali. Lawyers for the two men were to appear before the Bahamian Supreme Court to discuss whether a formal objection to the proposed settlement would be filed to block further proceedings.

That hearing, however, was postponed when one of the judges was forced to take an emergency leave. The court was to reconvene sometime near the end of February.

The basis of the objection would be that since Commodore International was incorporated in the Bahamas and filed for liquidation under Bahamian law, US bankruptcy courts have no jurisdiction in the matter—a point with which the creditors have disagreed since the beginning. The terms of the new accord have already been accepted by US Bankruptcy Judge James Garrity.

Two familiar faces resurfaced in February in the Commodore liquidation case: Irving Gould (right) and Mehdi Ali (left).

The underlying cause of this dispute may lie with differing provisions of bankruptcy law under the two jurisdictions. US law provides that former executives of a company filing for bankruptcy can be held liable for actions taken up to 12 months prior to filing. The more lenient Bahamian law stipulates only a three-month period. If some of the proceedings take place under US law, it could open the way for the creditors to file suit against Gould, Ali, and others for possible wrongdoing during the 12 months prior to Commodore's filing for liquidation last May.

The Philadelphia Inquirer also reported that two new parties may enter the bidding process. Present in Nassau on the day of the postponed Supreme Court hearing were lawyers for the German computer distributor Escom AG (previously rumored to be interested in acquiring Commodore) and an as-yet-unnamed "major American technology company."

Regardless of the number of bidders, the crucial element in the proceedings now is how the Bahamian court will rule on the Gould/Ali objection and whether this will cause significant delays in resolving the liquidation. *—DS*

DRACO: A NEW LIFE FOR THE AMIGA? A PREVIEW OF MACROSYSTEMS' '060 WORKSTATION

MacroSystems is a rare find these days. Not only is the German-based company a stalwart supporter of the Amiga, but it's also constantly redefining the market with innovative products, such as the VLab Motion board, the Retina Z3 display card, the 16-bit Toccata sound card, and Xi-Paint, its latest paint package. In a bold effort to revitalize the Amiga market, the company is producing a Motorola 68060-based computer that uses the Amiga OS: the DraCo.

Recently, *AmigaWorld* visited company headquarters in Witten, Germany, to find out just what all the buzz was about the DraCo.

Son of Amiga?

Although still in the earliest stages of development, the DraCo workstation promises enormous potential for high-speed rendering on the Amiga. When complete, DraCo will utilize AmigaDOS 3.1 as its operating system. According to company president Jorge Sprave, MacroSystems has verbal agreements with all of the major parties bidding for the Amiga technology to license the OS as soon as the legal proceedings are complete.

The DraCo concept is a unique one. For starters, no Amiga hardware will be used in the design (thereby sidestepping the current critical shortage of Amiga custom chips), yet the system promises 80% compatibility with existing software because it is based on AmigaDOS 3.1. MacroSystems will also provide an option for DEC's Alpha chip to work as a coprocessor to the 68060.

The standard system will most likely include ►

To locate the vendors of products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 58.

Denny on DOS

HINTS & TIPS FOR MASTERING THE OPERATING SYSTEM

By Denny Atkin

#11—Driving Miss Daisywheel

The Amiga's output has always looked good on screen. If you take the time to learn the ins and outs of the AmigaDOS Preferences printing system, you can make your hardcopy printouts look just as good. This month we'll take a look at the Amiga's printer drivers; next time we'll delve into the Prefs editors that give you control over them.

Although it's now a common feature in computer operating systems, ten years ago the Amiga's use of a single printer driver for all programs was revolutionary in the personal-computer market. The Macs of the day supported only Apple printers, while PCs required a different printer driver for every program.

The Amiga's centralized system means you need only one driver for all your programs (with the exception of a few—such as WordPerfect and PageStream 3—that use custom drivers in an effort to enhance printing capabilities). The drivers included with AmigaDOS support hundreds of different printer models; for those that aren't included, there are a variety of public-domain, shareware, and commercial drivers available.

What Is Your Preference, Sir?

Your printer may be supported by a Preferences driver even if it's not listed in the AmigaDOS manual. Check your printer's manual for code-compatibility with a popular printer: Most modern dot-matrix printers are compatible with the Epson 24-pin standard (EpsonQ), while most inkjets and laser printers are Hewlett-Packard compatible (HP_DeskJet and HP_LaserJet, respectively).

If you're in the market for a laser printer and you want PostScript for desktop-publishing purposes, try to find a printer that's compatible with both PostScript and HP LaserJet (PCL) codes. Although AmigaDOS releases from 2.1 on do include a PostScript driver, it's not a very good one and may not work well with some applications. With a dual-emulation printer, you can use PostScript to get the best results from desktop-publishing applications such as PageStream and Professional Page, and shift back down to HP emulation for programs like Brilliance and SBase.

QUICK TIP:

If you're using an Epson-compatible 24-pin printer, try the NEC_Pinwriter driver instead of the EpsonQ driver. This should work just as well for most applications, and will give you access to the 360-dpi resolution that the Epson driver doesn't support.

If you set out to buy a new printer, you may find upon investigation (and by all means investigate before purchasing!) that although it's supported by a Preferences driver, that driver doesn't let you use the printer to its full potential. For example, newer HP-compatible laser printers often support 600 dots-per-inch printing, but the Preferences driver supports only 300 dpi.

Another example is Canon's line of inkjet printers. While they understand Epson printer codes, you won't get a good-looking printout if you try to use an Epson dot-matrix driver. Break out your modem and find a copy of Wolf Faust's Canon Studio package online. A stripped-down version of the original Studio printer-driver software (more on this later), Canon Studio gives you much better control of your Canon printer's features. For a small fee, you can upgrade to the full-blown version of Canon Studio, which features multiple dither patterns and more.

The Studio II Advantage

Or better yet, give NoahJi's a call and pick up a copy of Faust's Studio II printer software. This must-have package provides top-notch drivers for Canon Bubble Jets, HP DeskJets, LaserJets, and other PCL printers, most 24-pin printers, and the Epson Stylus series. This package includes fast drivers that can not only take advantage of your printer's highest resolution, but can also support 256 gray levels and 54 dither methods, as well as your printer's built-in typefaces.

The Studio II package also supports 24-bit output to color printers and includes a program for printing 24-bit images at sizes ranging from thumbnails to multipage posters. There's even a Color Management System (CMS) feature, with which you can precisely match your printer's output to your monitor, eliminating dark, muddy printouts. (If you own a scanner, Studio II can even do its calibration automatically.) This package is not inexpensive, but if output quality is important to you, it's well worth the price.

Money-Saver Solutions

If you're just looking for a better printer driver and don't want to spend much, there are still some good solutions. Endicor has just released its Epson Stylus Color driver, which supports the 720-dpi and MicroWeave modes of Epson's superb color printer.

Hewlett-Packard owners can look to Creative Focus's SuperDJ3 and SuperLJ4 drivers, which dramatically improve output on DeskJet and LaserJet printers. There are also numerous public-domain and shareware drivers available on networks and local bulletin boards. *(To locate vendors of commercial drivers mentioned here, see the "Manufacturers'/Distributors' Addresses" list, on p. 58.)*

Look for a continued discussion on printing next month. ■

*Denny Atkin is author of the book **Denny Atkin's Best Amiga Tips and Secrets**. Send suggestions to him via e-mail at DennyAmiga@aol.com, or write to him c/o **AmigaWorld**, PO Box 802, 80 Elm St., Peterborough, NH 03458-0802.*

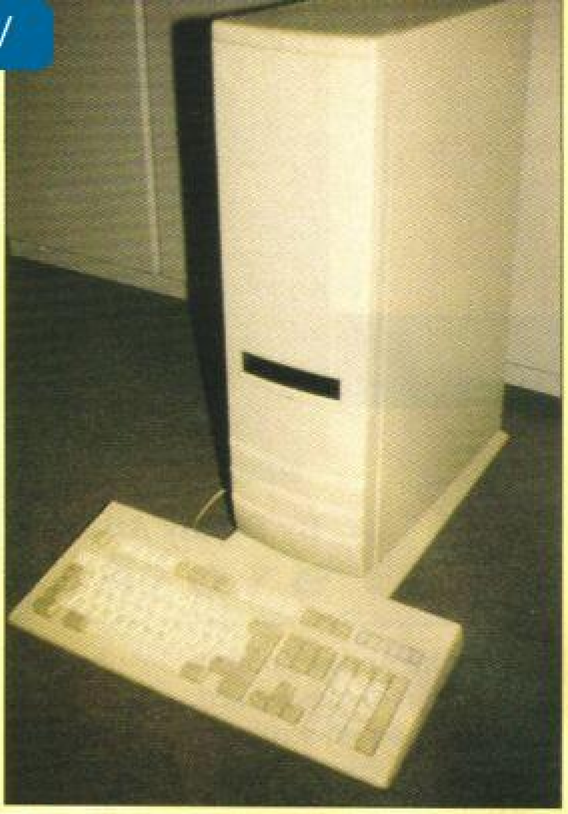
a CD-ROM drive in lieu of an internal floppy drive and slots for all of MacroSystems' existing products, such as VLab Motion and Toccata. Rather than 8-bit RGB output, DraCo will use the Retina Z3 for 24-bit output.

More than just a solution to hard-to-find Amigas, Sprave believes that DraCo could well be a cost-effective alternative to the SGI Indy, offering lower-priced software and more power for 24-bit nonlinear editing. Pending the outcome of the Commodore liquidation proceedings, look for MacroSystems/Noahji's to debut DraCo at NAB '95.

The new and improved VLab at work.

More Irons in the Fire

In addition, *AmigaWorld* was treated to a demonstration of the latest VLab Motion board and its MovieShop software on a 40 MHz Warp Engine-equipped A4000. You may recall that VLab took some heat last year in earlier reviews, but the new hardware and software show marked improvement. Certainly, the documentation and beta software that accompanied our initial review copy did not do the system justice. According to Sprave, problems with the chips on earlier versions have been rectified since the chips are now soldered into place. Now MovieShop 2.1 totally controls VLab Motion and Toccata, at last delivering on the promise of a complete nonlinear editing solution. With Y/C video fed into the system, you can save, resize, and manipulate both the sound and video in real time. Features such as picture-in-a-picture, drag-and-drop editing, and time-line editing make the VLab system a breeze. Any feature or button that appears on the screen can also be duplicated through ARexx commands. It would take a seasoned videographer to distinguish VLab's MPEG output from the video.


MacroSystems' DraCo: The next Amiga?

MacroSystems also demoed Xi-Paint software using its own Retina Z3 as the output device. Surprisingly, the 24-bit paint package seemed faster than most 8-bit paint programs on the market. (Watch for reviews of VLab Motion 2.1 and Xi-Paint in an upcoming issue.) —*TW*

CD-ROM GALLERY

Need that extra bit of something for your animations? ***Amiga Library Services*** is offering a line of multiplatform CD-ROMs for LightWave users: **Light-ROM 2** and **Texture Gallery**.

Light-ROM 2 ($39.95) contains more than 650MB of scenes, textures, images, and objects. Texture Gallery ($44.95) is a two-disc set of 24-bit textures from a wide variety of categories, including marble, skin, and rock, to name a few. Each disc includes a thumbnail directory for previewing images.

EXTERNAL SYNC

Sync Trap ($29.95, ***PreVue Technologies***) adds an auxiliary BNC to the Video Toaster 4000 on a separate connector plate; all four Toaster inputs can then be used for active video signals without any concern for the Toaster's sync reference signal. Sync Trap's connector plate installs onto an otherwise blocked expansion slot, thereby freeing input 1 on the Toaster 4000 board from being the dedicated sync input. (Note: a copper trace must be cut on the Toaster board in order for the Sync Trap to function properly.)

UPDATE SCAN

The **CD 2001** ($2299) is a 20-inch display version of ***CD Solutions'*** CD-1401 desktop monitor. The monitor delivers .31mm dot pitch CRT and up to 800x600 resolution on a non-glare screen with top-to-bottom display. The CD-2001 automatically syncs to a wide range of frequencies and has a wide video bandwidth of 65 MHz.

Twist 2 ($149.95, ***Oregon Research***), a relational database, will let you store any kind of file, including IFF, ANIM, and JPEG. It also offers full ARexx support for custom database programming, as well as various advanced options, such as import and export capabilities, customized output, and a built-in editor. It requires a hard disk and one megabyte of RAM.

Also from Oregon Research is **Squirrel SCSI** ($129.95), a PCMCIA SCSI-2 interface that lets you share up to seven devices between your A1200 and A600, including hard drives, CD-ROM drives, SyQuest drives, and tape drives. When you combine Squirrel SCSI with a CD-ROM drive you can even play CD-32 game titles on your A1200. Squirrel SCSI includes driver software, an audio utility to play CDs, and a CD-to-hard-drive sampler.

AW SHUCKS!

In the article "A Better Mouse" (January '95, p.18), I stated that I was unaware of any Amiga programs that offered support for a third mouse button. It has been brought to my attention that several programs do indeed offer this support, including shareware utilities such as MMBShift (Preben Nielsen), MMB Commodity (Roland Janus), MultiCX (Martin Berndt) and Mouse Shift (Garrick Mecker). Most of these utilities can be found on GEnie, CompuServe, or any Amiga-supporting BBS.

On the commercial side, PageStream 3.0 uses the third mouse button to reposition a page within the view window. Also, Directory Opus uses the third mouse button as an alternative to the Amiga-M keystroke, which brings the Directory Opus screen to the front. Support for a third mouse button is becoming increasingly prevalent in many Amiga applications, so check with your software vendor for additional information. Thanks to readers William Near and Gregory Donner for the insights.

—*Jeff James*

Overscan is compiled by Ann Record. Send your news to record@dv.com or mail it to Overscan, *AmigaWorld*, 80 Elm St., Peterborough, NH 03458. ■

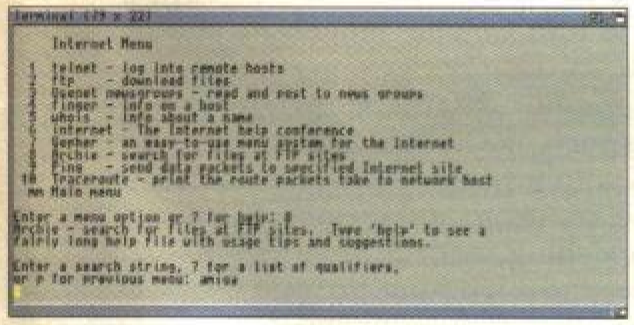
Prime-Time PD

ON-LINE SOURCES FOR FREELY DISTRIBUTABLE SOFTWARE

By Tim Walsh

Usually, when a computer manufacturer goes out of business, the users give a collective shrug and move on. But not so with the Amiga. A glance at network activity shows that almost ten months after Commodore went bankrupt, there's no obvious indication that the Amiga market is ready to up and die.

In the relatively short history of personal computers, no other major platform has enjoyed such a lucrative "death." Everywhere you look online, new programs—both commercial and freely distributable—are being written, and new users are buying new peripherals and not-so-new Amigas to use that software. At this point, we must most earnestly hope that a new owner will come along and pick up the pieces while there's still momentum in the market.

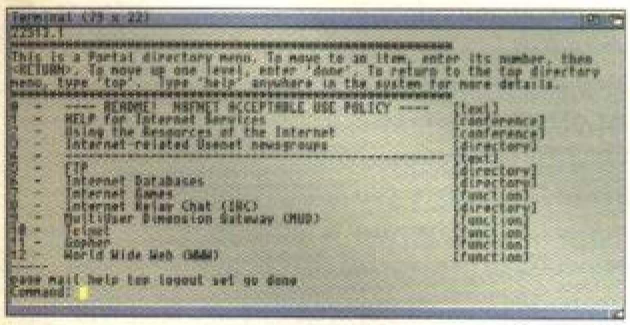


```
Terminal (79 x 22)
    Internet Menu

 1  telnet - log into remote hosts
 2  ftp    - download files
 3  Usenet newsgroups - read and post to news groups
 4  finger - info on a host
 5  whois  - info about a name
 6  internet - The Internet help conference
 7  Gopher - an easy-to-use menu system for the Internet
 8  Archie - search for files at FTP sites
 9  Ping   - send data packets to specified Internet site
10  Traceroute - print the route packets take to network host
 mm Main menu

Enter a menu option or ? for help: 8
Archie - search for files at FTP sites.  Type 'help' to see a
fairly long help file with usage tips and suggestions.

Enter a search string, ? for a list of qualifiers,
or p for previous menu: amiga
```



```
Terminal (79 x 22)
22513.1
=========================================================
This is a Portal directory menu. To move to an item, enter its number, then
<RETURN>. To move up one level, enter 'done'. To return to the top directory
menu, type 'top'.  Type 'help' anywhere in the system for more details.
=========================================================
0  -    ---- README!  NSFNET ACCEPTABLE USE POLICY ----   [text]
1  -    HELP for Internet Services                        [conference]
2  -    Using the Resources of the Internet               [conference]
3  -    Internet-related Usenet newsgroups                [directory]
4  -    ----------------------------------------          [text]
5  -    FTP                                               [directory]
6  -    Internet Databases                                [directory]
7  -    Internet Games                                    [function]
8  -    Internet Relay Chat (IRC)                         [directory]
9  -    MultiUser Dimension Gateway (MUD)                 [function]
10 -    Telnet                                            [function]
11 -    Gopher                                            [function]
12 -    World Wide Web (WWW)                              [function]
-----
page mail help top logout set go done
Command:
```

Both BIX (top) and Portal (bottom) provide you with Internet access.

Surf's Up!

If you're equally committed to staying with your Amiga, you might want to take up online surfing—as the exploration of the Internet is commonly called. Your first step in sharing in the excitement of the Internet should be to read Harv Laser's "Browsing the Web" (*AW,* Mar. '95, p. 24). In this article, Harv explains all about how to start the surfing process and the ways in which it is different from the procedures involved in using a conventional online service.

As mentioned in the article, you'll first of all need a subscription to either a PPP (Point-to-Point Protocol) or a SLIP (Serial Line Internet Protocol) node, or, alternatively, The Internet Adaptor program (TIA). You can usually locate a local node with a call to a computer store or users' group in your area. Once you've arranged access to a node, you can start gathering the necessary software.

The public domain offers a variety of Amiga utilities for accessing the Internet—so many, in fact, that the sheer number caught me by surprise when I tallied them up. Applications such as Amiga Mosaic, PPP, Amiga TCP/IP (Transmission Control Protocol/Internet Protocol programs) and an assortment of other necessary Amiga-specific utilities are readily available on traditional online services.

One of the first items you need to get onto the Internet is Holger Kruse's PPP V1.30, a SANA II-compatible PPP device that's needed for use with AmiTCP/IP. (SANA II is an Amiga network device-driver specification.) You'll need Kruse's program, which usually appears as PP1_30.LHA, to enter your IP number (assigned to you when you obtain a PPP account). The device also provides a way to connect two Amigas via a PPP link.

Another file that's necessary for newbies is HOW2 USEPPP.LHA. As its name implies, this is a text file describing how to get your PPP driver and connection configured. You'll find this file on both Aminet and GEnie's Amiga Roundtable.

Amiga Mosaic and Other Alternatives

Next, you'll need a copy of Amiga Mosaic and a copy of AmiTCP that's compatible with your version of Mosaic, of which there are four: 1.0, 1.1, 1.2, and a demo version that's used for practice purposes. Briefly, 1.0 represents the basic, no-frills hypertext front-end to the Internet, while 1.1 offers AmigaDOS-3.x support, and 1.2 offers World Wide Web (WWW) browsing capabilities. All three non-demo archives should come with corresponding copies of AmiTCP.

AmiTCP is also available as a stand-alone TCP/IP Network package. AMITCP-BIN-22.LHA, a large (580K) archive, provides you with version 2.2 of the AmiTCP TCP/IP network software. The package also includes SANA II drivers for SLIP and for the A2060 and A2065 boards. AmiTCP works with any network board that offers a SANA II-compatible driver.

Another file you might want to retrieve to improve your newfound surfing prowess is Archie 1.32, which commonly appears as ARCHIE132.LHA. This utility by George L. Coulouris provides an Archie client for AmiTCP 3.0 and lets you query anonymous FTP databases. Another version, which appears as ARCHIE 38.1.LHA, is an Archie client for versions of AmiTCP earlier than 3.0. Another useful Internet utility is the archive DIALUPV3_01.LHA, a SLIP/PPP dialer that lets you get a connection using a SANA-compatible device.

Of course, all of this isn't necessary if you have a Portal or Delphi network account and can get by without a fancy WWW graphical interface. Both networks provide no-frills menus to the Internet and Usenet newsgroups. BIX also offers limited Internet access, with a numbered menu system that allows you to surf about the newsgroups using your Amiga's keyboard.

Network Voice Numbers

BIX
800/695-4882
617/354-4137

CompuServe
614/457-0802
800/848-8199

Delphi
800/695-4005

GEnie
800/638-9636

Portal
408/973-9111
800/433-6444 ■

REVIE

An update of the ImageFX image-processing software..

IMAGEFX 2.0

Nova Design, $349.95
2.x/3.x required.
Hard-drive installable.
Not copy protected.

Accelerator compatible.
Minimum system: 3MB RAM, hard disk.
Recommended system: 8MB RAM, 10MB hard drive space, 68030 or faster accelerator.

I've always preferred Black Belt's Imagemaster as my Amiga image-processing program of choice. After seeing ImageFX 2.0, however, with its many paint, image-conversion, morphing, and effects tools, I'm impressed. What really sets it apart is its interface; it is the first Amiga image processor with an interface that you need not merely tolerate, but can actually enjoy.

The paint tools and effects gadgets behave more like a traditional paint program than those of either ADPro or Imagemaster, both of which seem unnecessarily complicated by comparison. Virtually all of the gadgets are "rollover" buttons that expand to a list of options when double-clicked. As a nice touch, context-sensitive AmigaGuide help is always a click away.

PAINTING FOR EFFECT

Although ImageFX lacks the sheer number of effects found in other image processors, you'll find all the essentials and then some. The Transform menu, for instance, features 2-D and 3-D rotation, including a sophisticated tool for rotating radial strips of an image by specifying different inner and outer radii.

Video and 3-D artists will appreciate effects such as shear, roll, interlace, and deinterlace, as well. The Distort menu includes a variety of special effects that bear descriptive names like Warp, Swirl, and Dream (as in the traditional TV-style fade-to-dream sequence). Uncommon tools like Pinch and Punch let you squeeze and distort images from a specified point, and Spherize maps an image around a sphere, complete with variable luminosity and an optional hotspot.

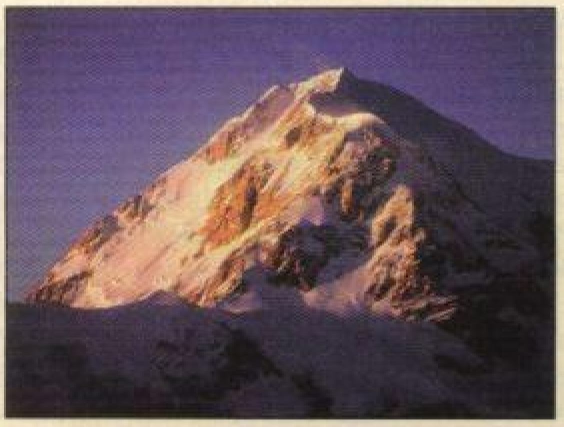
The Effects menu contains many simulated painting effects such as Oil Paint, Roughen, and Straw. PaintFX applies thousands of cumulative brush strokes to an image and creates an infinite variety of eye-catching, natural textures. Radial Star, Lens Flare, and Lightning provide dynamic effects and—like other tools in ImageFX—provide a thumbnail of your image for a preview of the effect before execution.

You can even use the mouse inside the thumbnail to configure most effects, such as where they occur and how much area to influence. Unlike real lightning, you can draw the exact path of ImageFX's virtual bolts on screen. On the down side, in order to make previews occur quickly, the thumbnails are small and difficult to see.

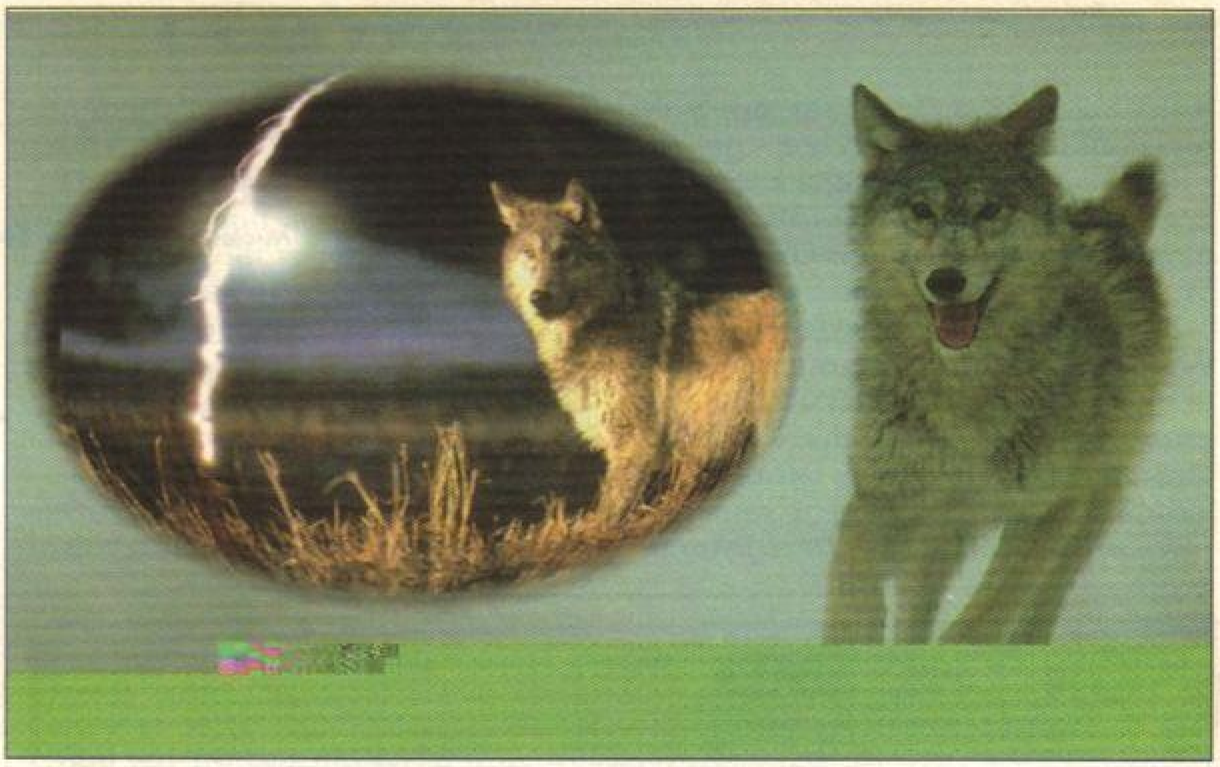
To locate the vendors of the products reviewed, see the "Manufacturers'/Distributors' Addresses" list on p. 58.

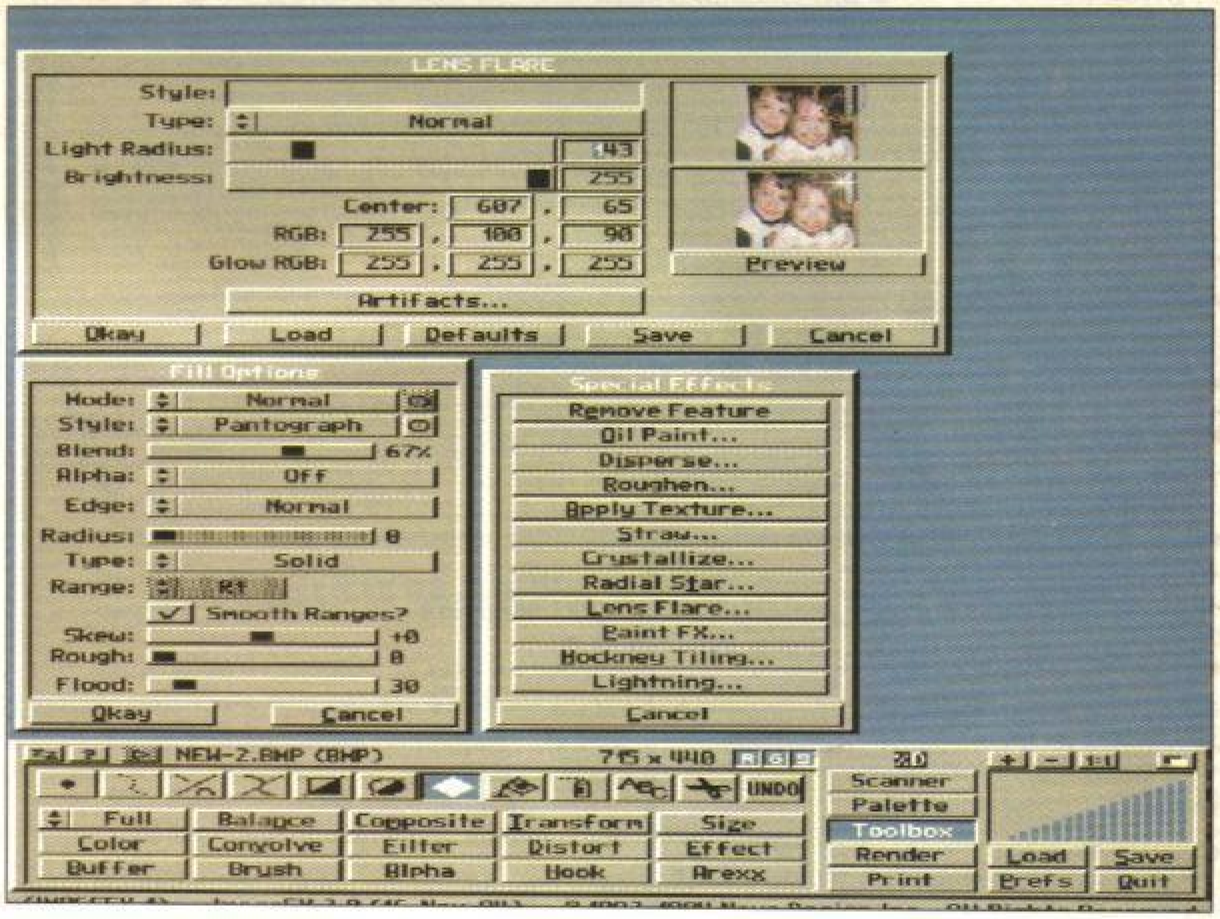
BUILT FOR EXPANSION

A Hooks menu gives you access to expansion modules available through Nova Designs, third par-



W S




LENS FLARE
Preview
Okay
Load
Defaults
Save
Cancel
Fill Options
Okay
Cancel
Special Effects
Remove Feature
Oil Paint...
Disperse...
Roughen...
Apply Texture...
Straw...
Crystallize...
Radial Star...
Lens Flare...
Paint FX...
Hockney Tiling...
Lightning...
Cancel
UNDO
Full
Balance
Composite
Transform
Size
Color
Convolve
Filter
Distort
Effect
Buffer
Brush
Alpha
Hook
Arexx
Scanner
Palette
Toolbox
Render
Print
Load
Save
Prefs
Quit

Style:
Type: Normal
Light Radius: 143
Brightness: 255
Center: 607 , 65
RGB: 255 , 100 , 90
Glow RGB: 255 , 255 , 255
Artifacts...

Mode: Normal
Style: Pantograph
Blend: 67%
Alpha: Off
Edge: Normal
Radius: 0
Type: Solid
Range: R1
☑ Smooth Ranges?
Skew: +0
Rough: 0
Flood: 30

NEW-2.BMP (BMP) 715 x 440

This dramatic image (top) was achieved by "rolling" the large wolf out of image center to make room for the sphere. Lightning was added to the other wolf's image, spherized, and pasted as a brush with slightly feathered edges.

Though the control panel (bottom) is your primary interface to ImageFX, the program has a host of requesters that offer easy access to the program's expansive toolbag.

A variety of graphic operators (illustration on opposite page) complement ImageFX 2.0.

ties, and the public domain. Hooks included with the program invoke such external programs as CineMorph (bundled with ImageFX) and OpalPaint.

Many programs boast ARexx support, but here the ARexx button calls up a list of more than 40 prebuilt ARexx scripts that do everything from printing PhonePak faxes to creating MPeg animations. In addition, you can record your own ARexx macros from within ImageFX by telling the program to record your keystrokes and mouse scurries, making macro building ridiculously easy.

Whether painting or processing, you can act on specific regions, brushes, or even the whole image at once. Likewise, each paint-and-fill tool has a seemingly unlimited number of settings; paint modes can be dark or light, or done in relief, chalk, or crayon. You can also set that same painting tool for rubthrough, pantograph, or fade effects—and feather the edges to boot.

There are a few things that ImageFX could do better. When creating regions, it requires you to get it right the first time. Imagemaster, on the other hand, lets you use the right mouse button to move regions around the screen as you are creating them. I missed this feature, which lets you easily create precise masks.

BATCHING

Two batch processors complement the program. In addition to the original Multi Processor, which required writing your own execution scripts, there's now AutoFX. AutoFX is simple to use with a variety of prefabbed scripts, but it does lack power. Considering the wealth of effects available in ImageFX, it's disappointing that there's no simple way to create complex, multifaceted animations based on those tools. You'll have to be satisfied with AutoFX's library of stock effects—like rotating spheres and animated lightning—unless you plan to pen the scripts yourself.

CONVERTING THE USER

The 400-page ImageFX manual is thoroughly indexed and fully illustrated, although the black-and-white screenshots sometimes fail to make the intended point. What you will find really impressive are the 36 pages of practical advice. This chapter is not just a rehash of common-sense techniques and program features; on the contrary, ►

it details tricks that you can apply to real graphics projects.

It's not often that a program wins my heart the way ImageFX has. With an almost magical combination of beauty and brawn, it's both powerful and easy to control. ImageFX isn't perfect yet—but then again, it hasn't had as many years to mature as the other guys. When you consider the balance of features and ease of use, ImageFX 2.0 comes out as a clear winner.

—Dave Johnson

Two linear tape-editing software packages.

PERSONAL EDITOR

Nucleus Electronics, $645

All Amigas.
2.x/3.x compatible.
Not copy protected.
Hard-drive installable.

V-STATION 3300 FOR TOASTER

Future Video, $1295

System requirements: Two VTRs for Personal Editor; Video Toaster-equipped Amiga for V-Station 3000.

While other computer platforms have either ignored linear video-tape editing altogether (in favor of nonlinear) or made it available only in systems costing thousands of dollars, the Amiga offers fantastic editing bargains. Here are two edit controllers, Nucleus Electronics' Personal Editor and Future Video's V-Station 3300, that both promise a lot of bang for the buck.

PERSONAL EDITOR

If you've produced 3-D animation on the Amiga, chances are you've heard of Nucleus Electronics' Personal Single Frame Controller, which lets your Amiga replace a dedicated single-frame controller for animation recording at a fraction of the usual cost. As the first product of its kind for the Amiga, it made single-frame recording affordable for many animators.

Now Nucleus strikes again with its Personal Editor, an edit controller that lists for an unbelievably low $645. The software uses the Amiga's serial port through the supplied cable to control two RS-422 VTRs (a source and a record deck) with timecode capabilities. Besides acting as an edit controller, the Personal Editor offers all of the Personal Single Frame Controller's functions. Without needing an external GPI connection, it supports a variety of display devices, such as GVP's IV24, Impulse's Firecracker 24, Digital Creations' DCTV, and even NewTek's Video Toaster. Connecting the cables and installing the software takes about five minutes.

The software communicates with the VTRs and reveals their model numbers—a feature not found even on expensive edit controllers. From the main screen, you can control either your source or your record deck. Spoiled by very nice (and expensive) edit controllers equipped with jog/shuttle controls, I was apprehensive about Personal Editor's mouse-controlled software shuttle slider. But I was pleasantly surprised to find my decks operating with extreme precision. The Editor also uses the cursor keys to control the VTR mechanisms. Moreover, it took advantage of the precise and smooth transport system on my MII decks—an important consideration, because a well-

New! ON THE BALL™
Personal Information Manager

Take control of your busy schedule and personal information so you always accomplish your goals. Calendar and Appointment Manager, Address Book and Contact Manager, To Do list, and FreeForm Notepad. Get organized ... get **On The Ball!**

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- Repeating appointments
- Configurable reminders can launch ARexx scripts
- Flexible appointment search
- Iconifies to a convenient monthly calendar
- Contact Management.
- Convenient Rolodex layout
- Extensive ARexx support
- Supports NAG & Address It!

SQUIRREL SCSI

Finally, a plug and play SCSI solution for your A1200 and A600! The Squirrel SCSI interface plugs into your PCMCIA port. Attach up to 7 different devices including: Hard Disks, Tape Drives, Syquests, Flopticals, and SCSI CD-ROM drives. Completely compatible with any SCSI 1 or SCSI 2 device. Squirrel comes with CD32 compatible SCSI software drivers and a host of utility programs including an audio CD player, a CD to HD sampler, and easy to use SCSI formatting and partitioning software. Call for info on Triple Speed CD ROM bundles!

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Termite is so easy to use even a novice telecommunicator will feel at home, yet it has all of the power and high end features to satisfy the most seasoned modem warrior.

• Designed from the ground up to take full advantage of Amiga WB 2.0 and higher! • 100% Amiga Style Guide compliant! • Flexible Phone Book w/ unique configuration for each number • Review buffer w/ cut and paste • Font and Screen sensitive •Configurable button bar!

Assign any program function/macro to the button bar. Want your own icons? No problem, just assign your own IFF brush to the button!!
• Fully ARexx programmable • Automatic Script writer. Turn on script recording and have Termite write your ARexx scripts for you!
• Automatic Call logging • Flexible Macros
• Supports Amiga XPR libraries giving you a wide range of transfer protocols like Xmodem, Ymodem, Zmodem, Kermit, Compuserve B+
• Supports Amiga XEM external emulations in addition to the built in ANSI and VT102 terminal emulations. Support for RIP XEM.

New! GAMESMITH™ Development System

Are you ready for a Game Development System that you can **REALLY** sink your teeth into?? Fast Parallax scrolling?? No problem. Dual Playfields?? A piece of cake! Multiple viewports with multiple animated objects, multiple background & custom object collision detection?? Child's play. Professional Game development is made easy with GameSmith!

Over 3 years in development, the GDS gives you the low level power to create the masterpiece of your dreams. The package has over 350 pages of documentation fully describing the system, utility functions, and over 130 library functions complete with a detailed tutorial and many examples with source.

• Complete animation system with double buffering • Custom Object/Object & Object/Background Collision Detection & Response • Prioritized object display • Automatic placement and Animation of Multi-Sequenced animated objects - you only make a single call! • Automatic Virtual Space object handling • Dynamic animation control
• Build your animations graphically in the interactive character animator. Customize all aspects of the object including sequence, placement, speed, display method & priority, object collision detection parameters. Save everything as a single object!
• Audio System makes sound playback easy! • Easy to use Joystick polling routines • Very efficient ILBM picture loader • Optional custom encryption to protect your artwork and sounds! • Fully AGA compatible, including mode promotion • Includes DICE GS C Compiler and Devpac GS Assembler

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designed edit controller that's easy on your equipment can save you a lot of money on VTR maintenance.

From the main screen, you may perform a simple edit or move to other modules. From the Edit List Manager, you log source tapes by marking the start and end of shots and adding any pertinent comments. After logging is complete (you have up to nine lists), you move to the Edit List and import any shots you wish to include. The assembly process takes place automatically, with the edit controller prompting you to change tapes when necessary. You can export the Edit List to the industry-standard CMX format for assembly on another edit suite, and you can also import CMX lists.

The main screen also lets you access the Animation Sequence Editor, which you can use to record a series of frames to tape, one frame at a time. Another option is the Time Lapse Recorder, which lets you use the Amiga to record time-compressed sequences, such as a whole day happening on your screen in a few minutes. You can record these time-delayed frames directly to your edit deck or to disk. One further handy feature is a SMPTE calculator with drop-frame and nondrop-frame operations.

Taking into consideration all its fine features and low cost, it's hard to see how you could do better than the Personal Editor as long as you don't need an A/B roll-edit system. (Even if you're an *un*registered user of its Personal SFC, give Nucleus a call. You may easily be able to upgrade to the Personal Editor.)

V-STATION 3300 FOR TOASTER

If you *do* need A/B roll editing, the V-Station 3300 may be the system for you. It uses Future Video's EditLink hardware-based controller to control two source and a record VTR. EditLink may be fully configured to work with professional decks, prosumer VTRs, and even camcorders not supported by the Personal Editor. The system I tested came configured for MII broadcast VTRs and included all necessary cables. The suggested price varies from $1295 to $1945 depending on configuration. Tour disks for every option are available for free by request.

The edit software also controls the Toaster internally, but you must trigger transitions through an external GPI connection (cable supplied). You must configure the software manually to work with your particular decks, but once this is done, you can save the configuration and not have to worry about it again. While VTR control is not as smooth as with the Personal Editor, it is perfectly acceptable, and the system handled the VTR transport mechanisms very well.

The V-Station software lets you log your scenes and auto-assemble them from the edit list you create. While you cannot import or export lists, the V-Station includes nice features—such as Park and Perform—that allow you to edit without having to worry about entering in and out points. It even lets you perform a GPI transition manually on the fly and enables you to tag events automatically so that you can perform match-frame edits. Moreover, you can select from any Toaster source and designate which source is going to transition into another.

The V-Station system includes plenty of editing options ordinarily found on high-end systems, and any experienced editor should be able to master it in just a few minutes. Conversely, inexperienced users should be able to handle more complex systems with very little trouble after learning to edit on the V-Station. Experienced pros might be

Continued on p.38.

DRACO
the non-linear computer

DraCo *noun* (drā-kō) **1:** Amiga emulation on a 68060-based tower computer running Amiga OS. **2:** An affordable machine for perfect quality (D1) digital editing with up to 2:1 compression ratios. **3:** That which contains an on-board 32 bit bus for Retina, VLab Motion, and a RISC Processor. **4:** Of or relating to immense animation power and rendering, yet very affordable, with base systems available for under $5,000. **5:** An instrument of power and speed, running most Amiga hardware and software, available this summer. **6:** Another in the long line of astounding MacroSystem products.

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COLOR PRINTE

De

By Gary Ludwick

With the possible exception of hard drives, there isn't an area of personal computing in which selection has increased so rapidly, and prices fallen so sharply, as in personal color printers. Where the Hewlett-Packard 500C had the field to itself just a little over two years ago (at a list price of nearly $1000), the market now sports a slew of excellent printers in the $500–$600 street-price range.

In our previous roundup of color printers (see May '94, p. 28), we looked at the HP DeskJet 550C, the Star Micronics SJ-144, the Canon BJC-600, and the Fargo Primera. This time around, we inspect ***Fargo's*** newest offering, the **Primera Pro**, with 600x300-dpi (dots per inch) dye-sublimation and wax-transfer printing, and ***Epson's*** **Color Stylus**, which features 720x720-dpi output.

The winner of our previous showdown, the Canon BJC-600, may have its work cut out defending its crown against these two contenders. *(To contact the manufacturers of the printers mentioned* ►

When we did our Siskel & Ebert on color printers last year, we found the stars of '94 were a pretty distinguished lot. But Fargo and Epson have introduced some "New Faces of '95" that are looking like definite Oscar material.

PHOTOGRAPHED BY ED JUDICE

RS

eux

ESC/P2
EPSON
Stylus
COLOR
FARGO
PrimeraPro

in this article, consult the "Manufacturers'/Distributors' Addresses" list on p. 58.)

Epson Color Stylus

IN THE EARLY days of personal computing (that's 10 to 15 years ago), Epson was *the* name in printers. No one else came close in features and pricing on tractor-fed dot-matrix printers. But recent years haven't been as good to Epson. For one thing, it stayed at the dot-matrix dance too long. But the company is back—in a big way—with the new Color Stylus ($699). And we mean big, literally.

Compared to the small footprint of the Canon BJC-600 (13.7 inches wide by 6.3 inches deep), the Epson is huge, measuring a hefty 18½x20½ inches (including front paper-tray extension) and weighing 16.3 lbs. (the Canon is less than 10 lbs). This is *not* a small printer.

Epson Color Stylus

The heart of the Epson Color Stylus is its Multilayer Actuator Head (MACH) print head. Unlike the Canon, which uses heat to force the ink from its print head, the Epson mechanically forces ink from its 48 color-ink and 60 black-ink nozzles. This eliminates the need for print-head replacement, as is required on the Canon. Unfortunately, Epson elected to use a tri-color cartridge—much like the HP color printers—along with a separate black cartridge. This means that when one color runs out, all three get pitched—a feature that can significantly raise your cost per print. Canon uses four individual color cartridges, a much friendlier and efficient scheme.

A word here about resolution: The Epson features true 720x720-dpi resolution. True is the operative word since some manufacturers—notably HP—feature software-enhanced resolutions, or dot-addressability schemes, which are useless to Amiga users. While the newer HP 560 may claim 600x300 resolution, its usable resolution is still only 300x300.

PRETTY—BUT NOT PERFECT

The Epson Color Stylus in 720x720 mode puts out superb, near-photographic quality prints. But the machine does have a few warts. First, 720-dpi mode is *very* slow. With four times the image information to process, the printouts take nearly four times as long as a 360-dpi print. For example, a one-third page 720-dpi color print of the girl with the red hat (see "Printer Test Comparisons" sidebar on p. 16) took 1 hour and 23 minutes on an nonaccelerated Amiga 1200. That translates to nearly 4½ hours for a full page print! Your driver and CPU speed will greatly affect those times.

Occasionally, we also ran into banding problems with the Epson, but not in a consistent manner. A cross-check on a PC-compatible platform, with Epson's own driver, revealed no such banding. Printer guru Wolf Faust, who developed the Studio driver we used for testing the Epson, commented that the problem

COLOR PRINTERS AT A GLANCE

Please note that prices given are manufacturer's suggested retail prices; almost all of these models have lower street prices—some several hundred dollars less. (For detailed descriptions and comparisons of the BJC-600, Primera, DeskJet 550C, and SJ-144, see "Show Your Colors," May '94, p. 28.)

MANUFACTURER	MODEL	PRICE	PRINT METHOD	RESOLUTION
Canon	BJC-600	$579	inkjet	360x360
Canon	BJC-600e	$549	inkjet	360x360
Epson	Color Stylus	$699	inkjet	720x720
Fargo	Primera	$995†	wax transfer or dye sub	203x203
Fargo	Primera Pro	$1895	wax transfer or dye sub	600x300
Hewlett-Packard	DeskJet 550C*	$719	inkjet	300x300
Hewlett-Packard	DeskJet 560C‡‡	$599	inkjet	600x300
Star Micronics	SJ-144	$399	dye transfer	360x360

*This model is no longer available from manufacturer.

†The dye-sub model of the original Primera lists for $1245.

‡‡Although HP claims 600x300 resolution for its DeskJet 560C (via software enhancement), the usable resolution for Amiga users remains at 300x300 dpi.

Primera Pro

seemed to appear more often on slower Amigas—such as the A1200—where the print head had to wait long periods for each batch of information.

To get good results in 720 mode, the Epson requires its own coated paper (and it recommends special paper for 360 dpi, as well). The good news is that Epson's paper is reasonable—coming in at about 13 cents per sheet—compared to HP's special papers.

Colors on the Epson tended to be warmer and somewhat richer, but not as vibrant as those of the Canon. But at 720 dpi the fine color shadings and detail from the 24-bit images we used were truly outstanding.

In the final analysis, the Epson Color Stylus is an excellent piece of work, turning out color prints that are very close to photographic in quality. The negatives of the unit include its large size, very slow printing in 720-dpi mode, occasional banding, the need for special coated paper, and its single tri-color cartridge. But if you want superb text output at a reasonable price and are willing to put up with those admittedly minor disadvantages to achieve near-photographic quality output, then look no further. The Epson Color Stylus is the machine to have.

Primera Pro

SO WHAT'S THE difference between the Fargo Primera we looked at in May '94 and Fargo's new Fargo Primera Pro ($1895)? Physically, not a thing. In terms of output, however, it's a whole new enchilada.

The original Primera handled both wax-transfer and dye-sublimation printing with a maximum resolution of 203x203 dpi. While that sounds low compared to inkjets or lasers, there are distinct benefits to the dye-sublimation process (in which solid dyes are converted into a gaseous state and then absorbed by the paper rather than being applied to the paper's surface). The dithering in this process is so subtle that even at a rated 203 dpi, the images appears nearly identical to a 1200x1200-dpi laser print—in other words, almost continuous-tone photographic quality.

In our original review we found the quality of the output nothing short of amazing, particularly when we considered that the Primera's price was nearly $8000 less than its closest rival! But, as with the Epson, quality was achieved at the cost of speed. Fargo accomplished its breakthrough in printer technology by eliminating the on-board RISC processors common in high-end color and laser printers. All image processing was done inside the Amiga—and that took awhile. It still does even with the Primera Pro.

The difference, however, is that now the output—upped to 600x300—is not simply "almost" photographic in quality . . . Primera Pro prints cannot be differentiated from continuous-tone, professional color-lab "c" prints! Working with 16- and 24-bit photo images in the Primera's dye-sub mode, we achieved output that was astonishing in its clarity—lacking any discernible dithering and possessing a high degree of subtlety in the shading.

A Few Important Caveats

The dye-sublimation ribbon, however, is three-color (CYM), and, as with the old HP 500C, this can lead to some problems when it comes to reproducing true, rich blacks. Compounding this problem is Fargo's decision not to license additional drivers from outside authors such as Wolf Faust.

With Faust's Studio DS driver, or those included with software such as Art Department Professional, Amiga users of the original Primera had a very full set of controls for color correction, gamma, contrast, brightness, and so on. While adequate to the task, the factory-supplied driver for the Primera Pro offers little in the way of control beyond lightening or darkening the final print. There *is* a hidden set of controls within the driver, but absolutely no instructions on their use We opted therefore to use Primera's default settings, and the slightly greenish tones you will notice in the test panel (see the "Printer Test Comparisons" sidebar) reflect both the absence of such correction and the type of blacks you can expect with a three-color process.

On the other hand, we noted in our original review that the Primera's major weak spot was its handling of text. Because of the printing process used and the relatively low resolution, type had a jaggy, rough appearance—making the Primera quite unsuitable for critical text work. Readers will note from the test panel that this is no longer a problem. The type sizes represented there (8-, 10-, 12-, 60-, and 84-point) are all well formed and the equal of any inkjet and even most laser printers. Unfortunately, type output from the three-color dye-sub ribbon does exhibit a very noticeable greenish tint, just as with the photographs. A black-only dye-sub ribbon, however, is available for text-only work.

Although this review has focused primarily on the Primera's dye-sublimation mode, it should be noted that the printer performed equally well using the wax-transfer method. Colors were bright, well-saturated, and very close to the Epson in overall quality. But, again, lack of suitable controls limited our ability to tweak and fine-tune the images. Also, those using switchbox setups will be happy to learn that Fargo apparently has corrected the original machine's tendency to balk at such arrangements. A switchbox with two eight-foot cables worked fine with the Primera Pro.

Mixed Reviews

We find ourselves with very mixed feeling about the Primera Pro. On the one hand, by upping the resolution Fargo has improved an already superb dye-sublimation imaging process and solved the machine's single problem area—type rendering. Yet, by excluding drivers from third-party Amiga developers ►

in favor of its own plain-vanilla offering, Fargo has negated the very imaging capabilities that serious graphics professionals require. Since we can see from the user's manual that such graphics controls *are* present in the Macintosh version of the driver (although not in the Windows version), we'd have to suggest that serious users willing to pay the $1400 street tab wait until either Fargo produces a driver worthy of the price and the machine, or once again licenses Amiga developers who can. ■

Gary Ludwick is chief print master at the Creative Department, an advertising agency in Charlotte, NC. Write to him c/o AmigaWorld, 80 Elm St., Peterborough, NH 03458.

PRINTER TEST COMPARISONS

IN TESTING BOTH the Color Stylus and the Primera Pro, we used a nonaccelerated A1200 with 6MB of RAM, and a switchbox arrangement to A/B the printers to the computer.

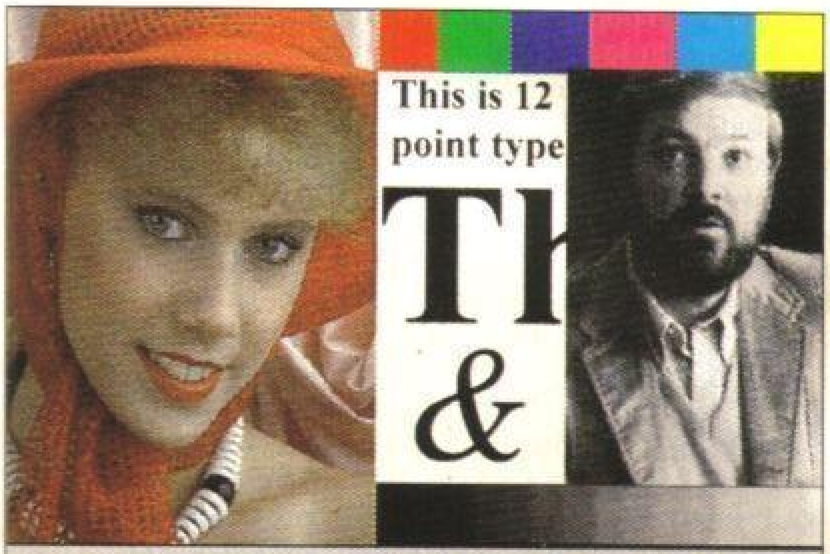
DRIVERS

With the Epson printer we used the **Studio II Epson Color Stylus Driver** ($99), authored by Wolf Faust, which is available from most mail-order sources, or directly from the distributor, ***NoahJi's***. This new driver package features a Color Matching System (monitor-to-print), which greatly simplifies achieving excellent color prints on the first try.

We also checked out the **Epson Color Stylus** driver from ***Endicor Technologies*** ($44.95). This driver works like a standard Workbench driver but utilizes the special features of the Epson. It does not work with monochrome Stylus printers.

MEDIA

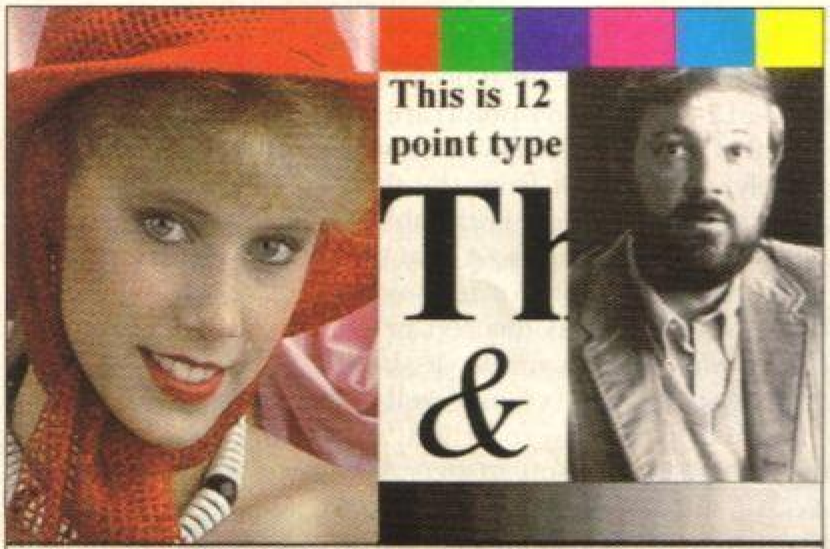
All tests were conducted on the special papers recommended and supplied by the manufacturers. Both the Epson and Fargo can also handle transparency material. In addition, the Epson will print envelopes, and the Fargo has special materials for printing heat-transfers for Tee-shirt appliques. ■ —*GL*



Fargo Primera Pro - Wax Trans. 600 x 300

MSRP :$1895
Driver: Fargo 1.1
Wax refill kit: $45.00/80
Cost per wax transfer page $ .56
Rated printing time: 1.5 MPP
Test panel print time: 13:25

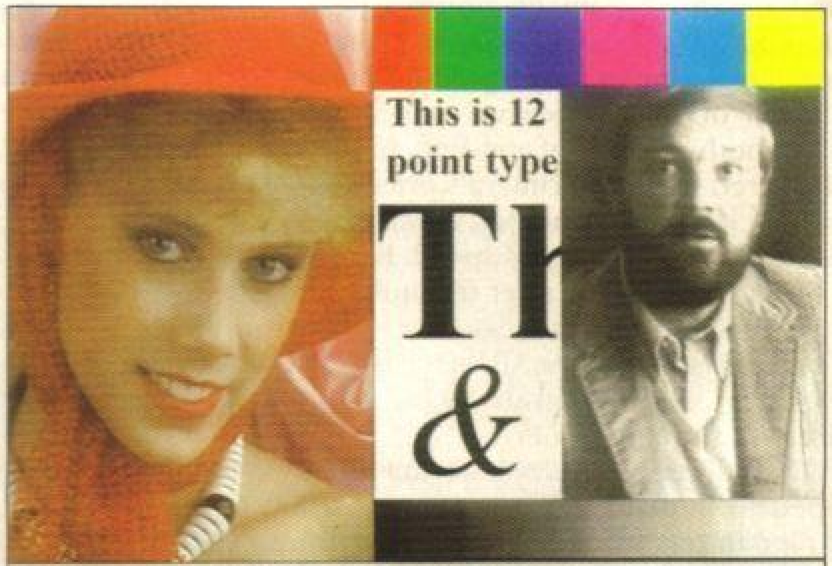
Fargo Electronics,7901 Flying Cloud Dr.Eden Prairie, Mn.
1-800-327-4622



Epson Color Stylus - 720 dpi

MSRP :$699
Driver: Studio II
Color Cartridge: $35
Black Cartridge: $17
720 paper cost: $25/200 sh.
Color page cost: $1.28 (100%)
Rated printing time: Not avail.
Test Panel print time: 13:20

Epson America,Box 2842,Torrance ,CA 90509 (310)782-0770



Fargo Primera Pro - 600 x 300

MSRP :$1895
Driver: Fargo 1.1
Dye-sub refill Kit: $90/25
Cost per dye-sub page: $3.60
Rated printing time: 9-12 MPP
Test Panel print time: 41:15

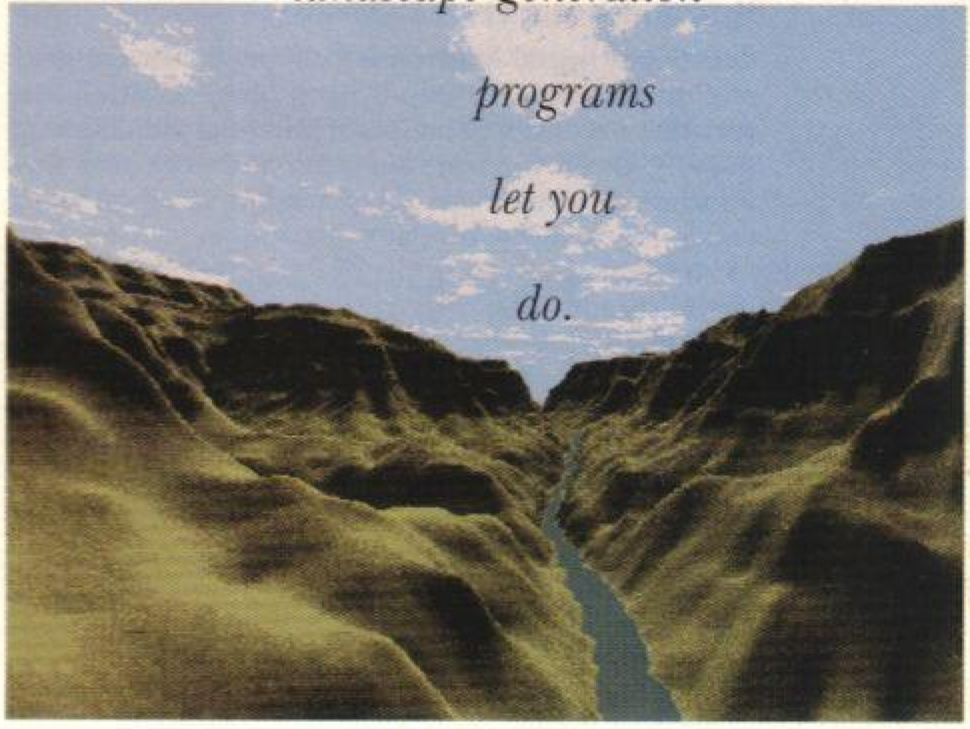
Fargo Electronics, 7901 Flying Cloud Dr., Eden Prairie, Mn
1-800-327-4622

The output of Fargo's Primera Pro looks even better than its 600x300 dpi, both in the wax-transfer version (upper right) and, especially, the dye-sub model (lower right). The Epson Color Stylus (lower left) delivers near-photographic results at 720x720 dpi.

Fractal Landscapes

What could be more exciting than creating your own planet?

That's exactly what 3-D landscape-generation programs let you do.



The Grand Canyon, rendered by Scenery Animator.

THE AMIGA WAS a true pioneer in the area of 3-D landscape generation on personal computers. Almost as soon as researchers had figured out the algorithms for generating 3-D landscapes, public-domain software showed up that allowed the Amiga to create them. Commercial software followed shortly thereafter, and the Amiga has set the pace ever since. Only recently have other platforms begun to catch up.

THE REAL, THE UNREAL, AND THE SURREAL

Landscape-generation programs can create very realistic images of actual locations by reading and interpreting Digital Elevation Model (DEM) files, which are developed from data gathered by the United States Geological Survey. (For more information on DEMs, see the sidebar on p. 20.) Once you have loaded the DEM data into your landscape program, you can then modify the parameters that determine how your finished rendering will look. You can change lighting, point of view, insert tree lines and snow lines, and more. Some programs even let you edit the landscape data, so that you can flatten the top of Mt. Baldy or cut a gorge the size of the Grand Canyon into the Iowa plains.

If you'd like to generate landscapes that have nothing at all to do with reality, these programs will do that, too. You can make your own by hand with the appropriate editor, or you can let your program do the hard work for you. You can generate random fractal landscapes by taking a triangle, dividing it into three subtriangles, and pushing the center point up or down. This process is then repeated on the subtriangles for a set number of iterations. Depending on how may triangles you use and how far you push them up or down, you can end up with a subtly rolling landscape or mountains higher than the Himalayas.

These so-called "random" landscapes are not really random; they are usually generated from a seed number you supply. If you type in the same seed number, you get the same landscape. However, with millions of potential seed numbers, you've got millions of potential landscapes available to explore.

It's also possible to take an IFF image and translate it into a 3-D landscape. The color of each point on the x-y plane of the picture is interpreted as a different height, and that is plotted as a 3-D landscape. Of course, you can end up with some very strange landscapes this way—for example, a mountain that's based on a digitized image of your face. (Stand aside, Mt. Rushmore!)

APPLY YOURSELF

All this may sound like fun, but what is it good for? One answer is, "What's wrong with having a little fun?" But there are real-world uses for these programs, too.

If you're into computer graphics and animation (you *do* own an Amiga, don't you?), then you can use these programs to generate realistic scenes for your illustrations or movies. If you're a digital artist, for example, you can generate an image of your local landscape, then finish it off by adding buildings and roads in their actual locations; or you can create a totally new landscape of your own.

If you're an animator, you could try this trick: Generate a scene of a flat plain, then generate successive frames, increasing the heights of mountains rising out the plain. Played back, this sequence is like the dramatic mountain-building scene from "Rite of Spring" in Disney's *Fantasia*. Even more spectacular is a high-speed "fly-by" of a mountain or a deep gorge, complete with barrel-rolls! You can even pick a high, straight-down viewpoint and step sideways from frame to frame, simulating the view from the ►

By Mark R. Brown

window of your own Space Shuttle mission.

If you're a photographer, you can generate images of a real-world mountainscape from different vantage points and under different lighting conditions to find an interesting view *before* you hike 20,000 feet up a mountain, only to find that the view would have been even more spectacular from the next peak over. Scientists and environmentalists can study the topography of the earth from many angles and under a variety of conditions, supplementing field work from the comfort of their computer terminals.

In other words, as with all Amiga creativity software, the usefulness of landscape-generation software is limited only by your imagination.

ROLLING YOUR OWN LANDSCAPES

Creating a fractal landscape with any landscape-generation program is a step-by-step process, with many variables to consider and lots of potential pitfalls along the way. But if you start out small and work your way up to more complex projects, reading the manual as you go, the process is relatively painless.

The first step in the process involves creating or loading some form of terrain map. This can involve loading a DEM file, creating a DEM file of your own using a terrain-map editor, generating a "random" landscape, or translating an IFF image.

Once a terrain map is created or loaded, you can make a multitude of adjustments to it. Fractal detail can be added or taken away: You can usually select a small section of the terrain map and zoom in on it, or place a border to limit the area rendered. Scaling lets you adjust the amount of rise or drop, effectively turning mountains into molehills or vice-versa.

After you have adjusted your terrain to your liking, you can add any of a multitude of details. You can usually set a tree line and snow line to determine the altitudes at which trees stop growing or snow first appears. Additional controls may let you adjust a "fudge factor" to determine how far above and below these lines trees and snow will wander. You can set sea level, and watch the land recede into the depths; river and lake options let you fill in low spots to create lakes, or start rivers flowing downhill, following the contours of the terrain. Some landscape generators allow you to place a variety of individual trees, buildings, or other objects into your image. And you can add clouds to the sky, or even call up a night sky full of stars.

Once all the details are in place, you'll want to set the values that determine how you'll actually see the landscape. First, you pick your camera position. Next, you set a point at which your camera is aimed. You might want to preview how your scene will look in a preview window. After the shot is set up, you can adjust lighting by moving the sun. Some programs even let you adjust haze settings that determine how much objects blur as they recede. Finally, you can define camera settings, from lens type to field and depth of view. You can even tilt the camera!

Once you have set everything to your liking, you can select the type of image you want to render. Screen size, color depth, and overscan are all user-selectable. Some programs even support third-party graphics boards.

At this point, you can choose the degree of detail rendered, which also affects rendering speed. You'll want to render test images with less detail and at lower resolutions to save time, then set them higher for a final rendering—which may take all night, depending on your system.

If you want movement, you can create animations. Some programs let you define movement paths, and will generate animations automatically. However, you may have to use an additional program, or even save

PD and Shareware Landscape Programs

THERE ARE MANY good PD and shareware landscape programs available for the Amiga, as well as some fractal-generation programs that produce natural-looking plants, trees, and clouds that you can cut and paste into your landscapes. The following are all available on Fish disks. You can also look for them online on Aminet, commercial online services, or an Amiga BBS near you.

PROGRAM	FISH #	DESCRIPTION
Cloud	216	Generates and displays fractal clouds
CloudsAGA	981	Improved fractal cloud generator with AGA support
FracGen	188	Generates fractal ferns, trees, and more
Genesis	501	PD demo of the now-defunct 3-D landscape program from Hollyware
IFSgen	554	Generates pictures of ferns, trees, galaxies, etc.
Landscape	554	A fractal scenery generator written in AMOS
MandelMountains	383	Renders mountain-like 3-D Mandelbrot images
MapTrix	853	Texture-map generator; includes mountains and clouds
Plasma	779	A plasma cloud generator for AGA machines
Scenery	155	PD precursor to Scene Generator
SceneGenDemo	299	Demo of Scene Generator, the precursor to Scenery Animator
SculptTools	430	Create objects for Sculpt 4D, including mountains
Terrain3D	94	Early Amiga PD 3-D fractal scene generator
TreeGrow	814	Generates quasifractal trees or plants

In the background: A lightened version of AGA clouds, generated by CloudsAGA.

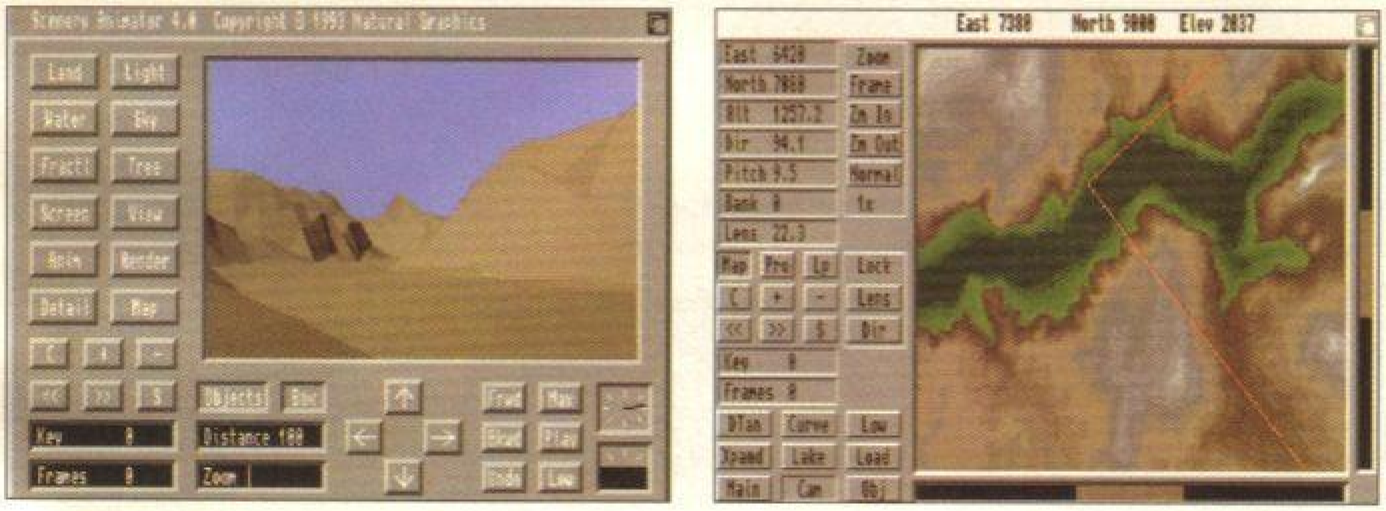
individual frames that you can then assemble with the help of DeluxePaint or an Amiga animation program.

AMIGA LANDSCAPE-GENERATION PROGRAMS

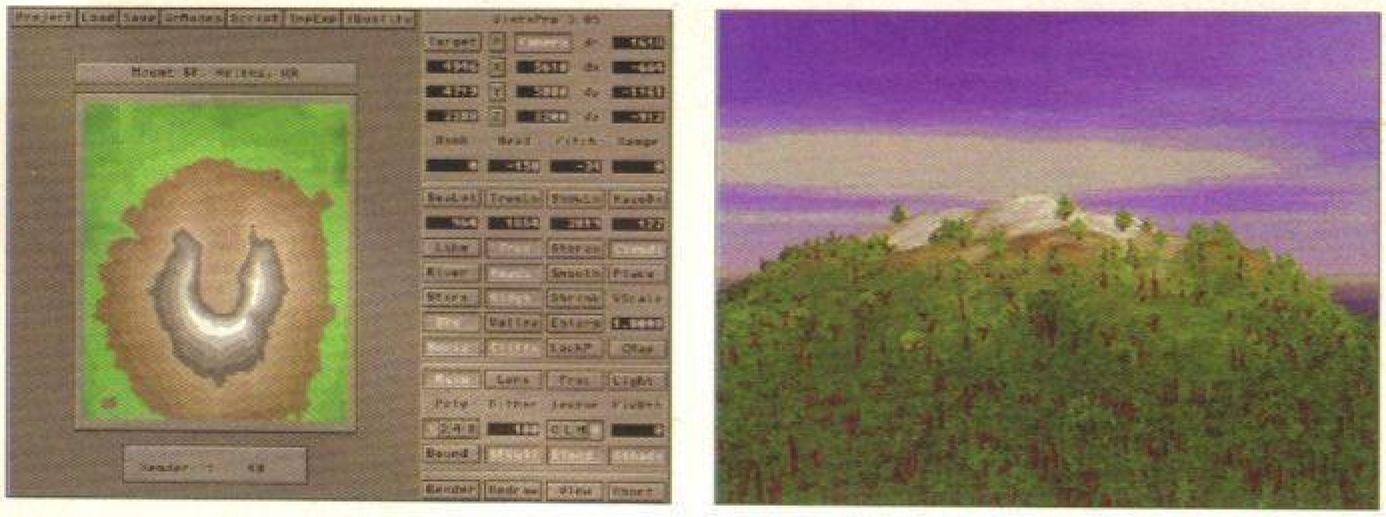
Now that you know what's involved in generating your own 3-D landscape images, here's a quick rundown of the landscape-generation packages available for the Amiga. Currently, you can get three excellent commercial programs: **Scenery Animator** ($99.95, ***Natural Graphics***), **VistaPro** ($99.95, ***Virtual Reality Labs***), and **World Construction Set** ($250, ***Questar Productions***). *(To locate the vendors of these programs, see the "Manufacturers'/Distributors' Addresses" list on p. 58.)* A fourth, Hollyware's Genesis, is no longer being sold, though it lives on in a freely distributable demo version. There are also many PD and shareware programs available (see the sidebar on p. 18).

Scenery Animator (reviewed in the Dec '93 issue of *AmigaWorld*, p. 21) made its debut years ago as a PD program called "Scenery" on Fish Disk #155. It evolved into Scene Generator, then became Scenery Animator. It is the easiest to use of the three Amiga landscape generators, with an intuitive, button-based interface and an integral 3-D preview screen. You can "drive" around the preview screen using on-screen arrow buttons, and can swap over to a map screen for the whole "top-down" view. Scenery Animator also has excellent built-in animation features. Though it is powerful enough for serious users, its ease of use definitely makes it the best landscape-generation program for the casual user, artist, or animator.

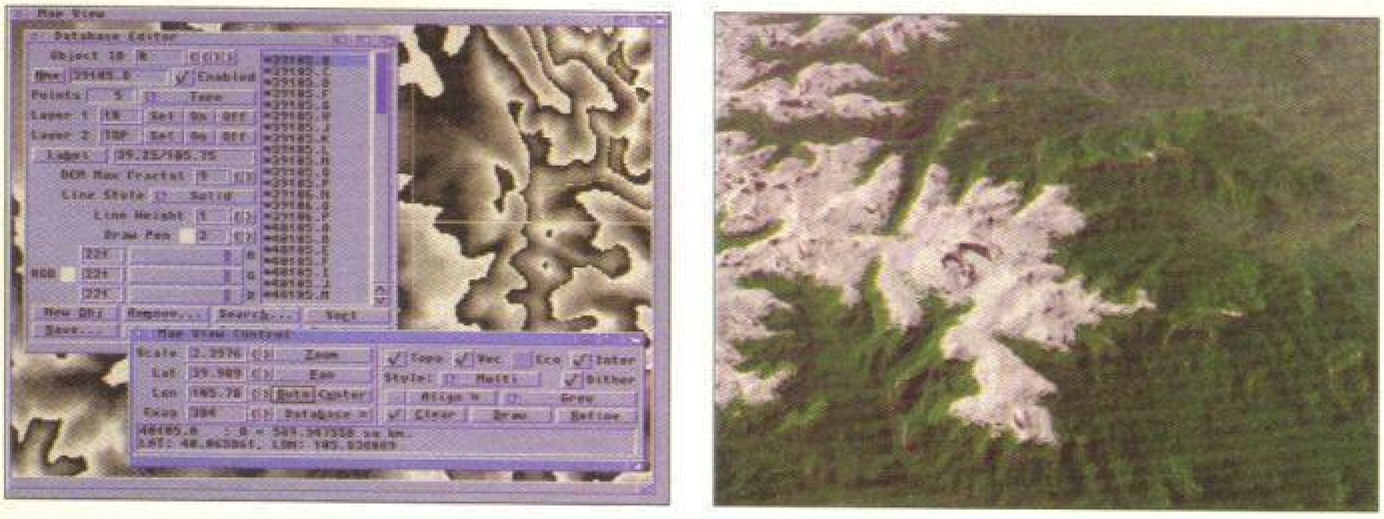
VistaPro 3.1 (reviewed in the Jul. '93 issue of *AmigaWorld*, p. 20), gives you an incredible amount of control over a generated image. The main screen presents you with an almost overwhelming array of buttons and options, and clicking on almost any button brings up even more buttons! Fortunately, the user-friendly manual can lead you through the whole process with little difficulty. Though it might be somewhat daunting for the weekend dabbler, VistaPro is an excellent choice for the graphics professional. There is, however, no way to edit DEMs in VistaPro, so you'll ►


Scenery Animator 4.0 Copyright © 1993 Natural Graphics
Land
Light
Water
Sky
Fractl
Tree
Screen
View
Anim
Render
Detail
Map
Objects
Key
Frames
Distance 100
Zoom
East 7388
North 9000
Elev 2837
Zoom
Frame
Lock
Lens
Dir

Scenery Animator's main screen (left), and (right) a Scenery Animator map screen.


VistaPro 3.05
Mount St. Helens, WA

The Vista Pro main screen (left), and (right) a scene generated by Vista Pro.


Map View
Database Editor
Map View Control

The World Construction Set map screen (left), and (right) a portion of Colorado generated by WCS.

also need **TerraForm 2.0** ($25), a 2-D/3-D terrain editor that lets you create your own VistaPro maps. If you want to create animations, you'll also want **MakePath** ($25), which creates animation paths. Both are available from Virtual Reality Labs.

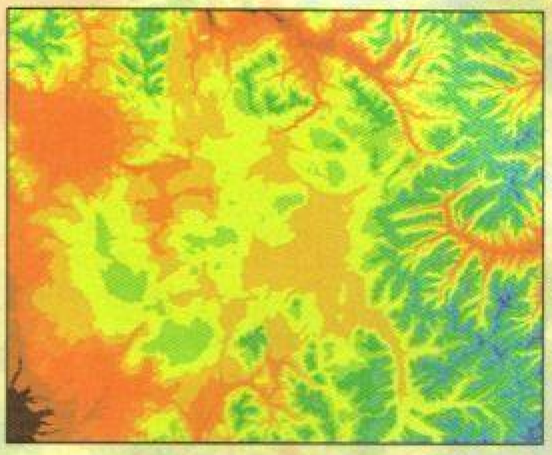
World Construction Set (reviewed in the Jan. '95 issue of *AmigaWorld, p. 42*) is the newest of the three Amiga landscape generators. Aimed at a slightly different market, its forte is creating high-view DEM maps that look like photos taken from space. It allows you an incredible amount of control over esoterics like ecosystem definition. However, it doesn't generate "random" fractals at all (though that is promised for a future version). It is also a complex program to use, with a plethora of buttons, windows, and screens to wade through before you can generate an image. The manual is in what I would call a "state of transition," and rendering times are long. Still, its images are impressive, and it is constantly being improved.

Although it doesn't publish a landscape generator of its own, ***MegageM*** makes two support programs.One of these, **Fractal Pro** ($149.95; reviewed in *AW*, Oct. '93), can compute ten different fractal equations (including the Mandelbrot set) and save the results as DEM files, which you can then load into VistaPro or Scenery Animator to create 3-D scenes based on fractal data. The other, **Scapemaker 3.0** ($49.95), converts IFF images into VistaPro format DEM files. It can also logically combine landscapes, enabling you, for example, to seamlessly merge Mt. Fuji into a pastoral Iowa farm scene. Scapemaker features dual on-screen DEM displays and ARexx support.

Now that you know more about what is possible in landscape-generation on the Amiga, you can use these programs to create rich images of real locations—or to fulfill your visions of imaginary worlds. ■

*Mark R. Brown authored **AW**'s article on fractal imagery in the Feb. '95 issue. Write to him c/o **AmigaWorld**, Editorial Dept., PO Box 802, 80 Elm St., Peterborough, NH 03458.*

Digital Elevation Model Files



A DEM map of Yellowstone National Park.

A DIGITAL ELEVATION MODEL (DEM) consists of a sampled array of elevation data for ground positions at regularly spaced intervals. The 1-degree DEM data available from the United States Geological Survey (USGS) covers, in blocks one degree square, all of the contiguous United States, Hawaii, and most of Alaska. (The USGS also distributes 7.5-minute, 15-minute, and 30-minute DEMs.) The basic elevation model is produced by the Defense Mapping Agency, but is distributed by the EROS Data Center in the DEM data-record format. One-degree DEMs are also referred to as "3-arc second" or "1:250,000-scale" DEM data.

The majority of the 1-degree DEMs are produced from cartographic and photographic sources. The topographic features (contours, drain lines, ridge lines, lakes, and spot elevations) are first digitized and then processed into the required form and spacing.

An ascii DEM file is organized into three logical records: types A, B, and C. The type-A record contains information defining the general characteristics of the DEM, including the DEM name, boundaries, units of measurement, minimum and maximum elevations, number of type-B records, and projection parameters. There is only one type-A record per DEM file. Type-B records contain profiles of elevation data and associated header information. There is a type-B record for each profile. Type-C records contain statistics on the accuracy of the data.

If you have anonymous FTP access to the Internet, you can download DEM files from edcftp.cr.usgs.gov in the directory /pub/data/dem. This directory contains the 1:250,000-scale DEMs for the contiguous United States. The files have been compressed with the GNU "gzip" utility, which is available for the Amiga from any Aminet site on the Internet.

A complete explanation of the 1:250,000-scale DEM format can be found in the USGS National Mapping Program Technical Instructions, Data Users Guide number 5 (known as "Digital Elevation Models"), available for a small fee from the Earth Science Information Center, US Geological Survey, 507 National Center, Reston, VA 22092; 783/648-6045 or 800/USA-MAPS; FAX: 783/648-5548.

If you have access to the World Wide Web (WWW), you can also obtain information about the DEM data set at the following URL address: http://edcwww.cr.usgs.gov/glis/hyper/guide/1_dgr_dem

COMMERCIAL DEM FILES

Scenery Animator, VistaPro, and World Construction Set all have their own DEM formats, although they can also load and translate USGS DEMs. Each vendor offers DEM data for major portions of the United States (and, in at least one case, parts of Mars, too). Though it's hard to beat the price of the free USGS data online, it can take hours to download even one DEM file. For example, just one of the two DEM files for the Denver area is almost 10 megabytes in size, and over 3 megabytes compressed!

Natural Graphics offers dozens of floppy disks full of DEM files for Scenery Animator at $10 each, and Virtual Reality Labs also sells dozens of different scenery disks for VistaPro at $34.95 each or five for $60. Questar Productions has gigabytes of DEM data for World Construction Set on floppies or on Syquest removable cartridges. Sets of two floppy disks (the same scale as the others) are $35 each. Many other resolutions are available on request. □—*MRB*

Face to Face with MorphPlus

Check out these expert tips—plus sample project—designed to get MorphPlus users morphing and warping like the pros.

If you have mastered some of the basics of a morphing program such as MorphPlus, but can't seem to achieve the kind of results you see on TV, maybe you need to hone your techniques a little before moving on to the next stage. While this article is not a tutorial, it will outline some basic guidelines that you can use to make good-looking morphs. The examples provided here refer to MorphPlus (Elastic Reality), but you can apply many of the concepts presented to other morphing packages, such as Imagemaster (Black Belt Systems) and ImageFX (Nova Design).

We'll assume you are familiar with the basic tools of MorphPlus (vectors, points, and edges), but it's a good idea to keep your users' guide handy for reference. (For a complete review of MorphPlus, see May '93, p. 83. Also, consult reviews of other morphing packages, including Imagemaster R/t, Jan. '94, p. 14; ImageFX, May '93, p. 19; and ImageFX 2.0 in this issue, p. 8.)

FIRST THINGS FIRST

The first thing you need to decide is what kind of morphing effects you want to perform. These can range ►

BY CHRIS EDGIN

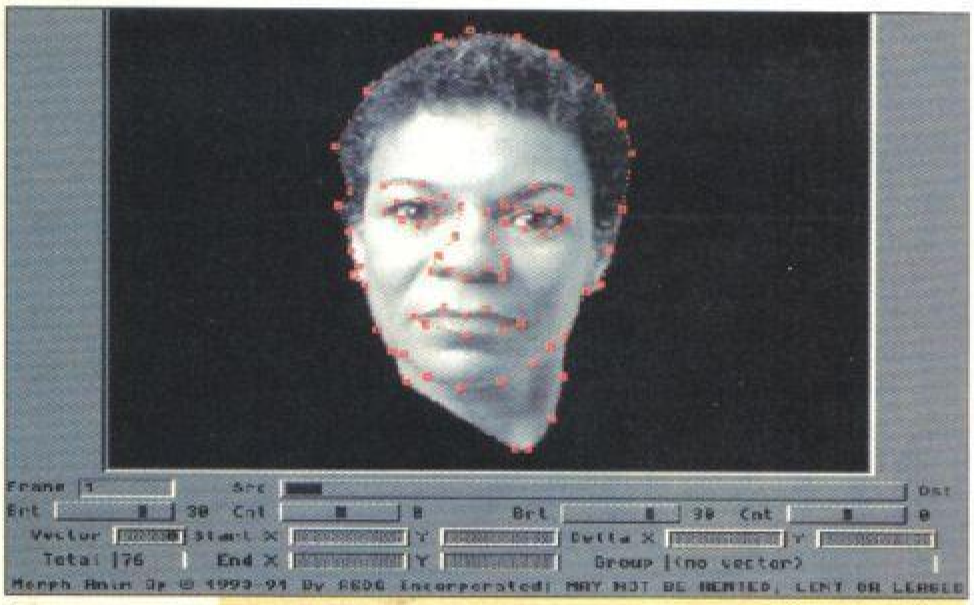


Figure 1. Defining and placing vectors is a key element in creating a morph with MorphPlus. Vectors must be placed on corresponding features in both the source and destination images.

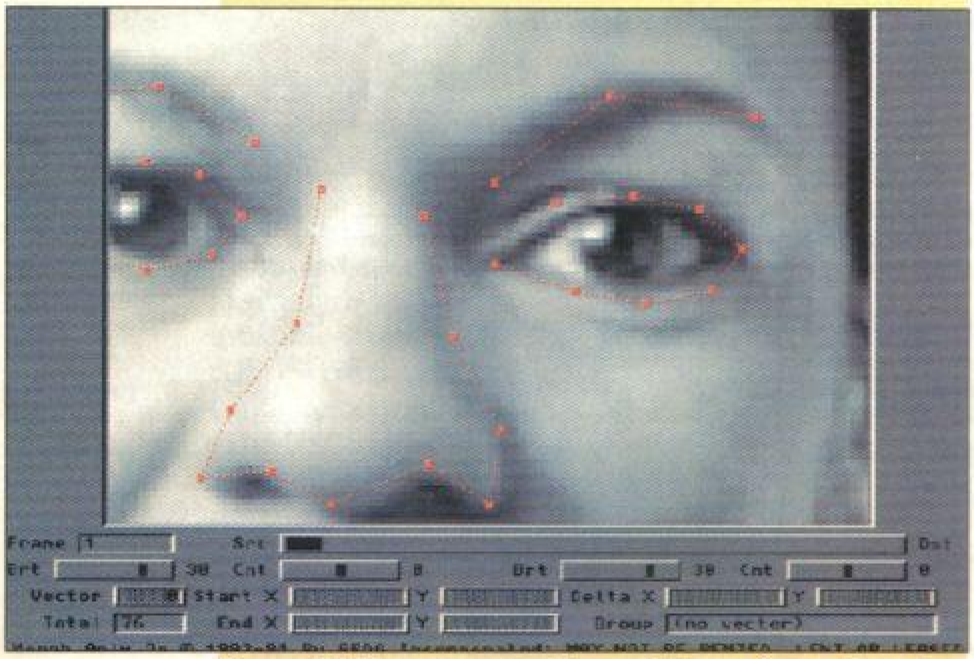


Figure 2. Edges—connecting points you have placed on certain features of your subject—are used to define the key areas of the morph, such as eyes, nose, mouth, and so on.

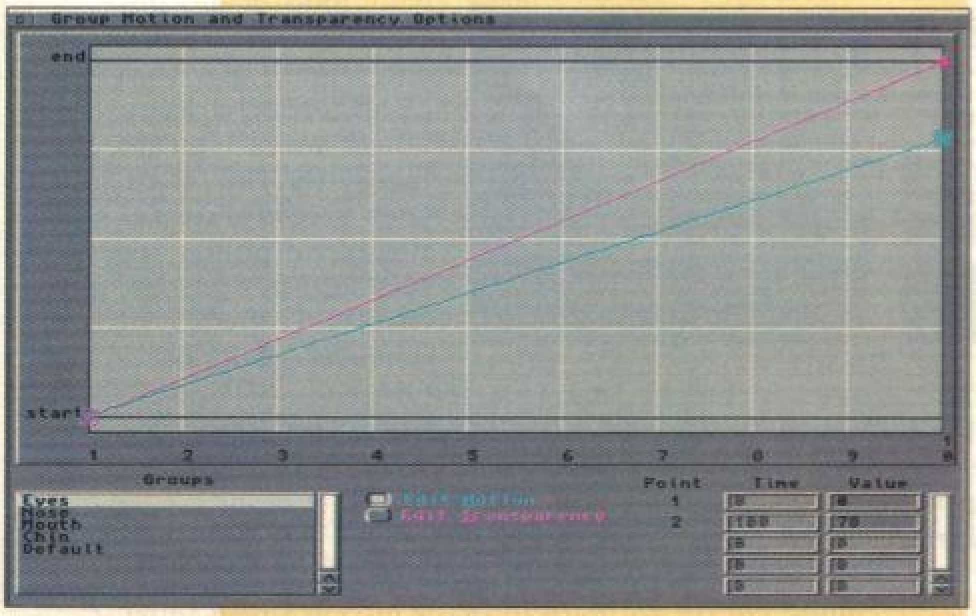


Figure 3. MorphPlus's Group editor allows you to save sets of vectors as groups—thus saving you time and effort if you need to use them again in the same or different projects.

from a simple cross dissolve to a complex morph where different areas of the image change shape and texture. Your next step is to choose your source material. In some cases, you may find that the effect you want to perform is just not feasible with the source material you have. Generally, it is better to decide upon the effect to perform and obtain source material to match. The example used here is a classic face morph, in which we morph the face of a woman into the face of a man. While this does not really show some of the fancier effects you can achieve, it will illustrate how to obtain a smooth-looking, believable morph. Keep in mind that the morphing program cannot create data that does not exist; it can only transform the material you provide it with.

Once you have suitable source material, you can now go about the task of defining the morph. In our MorphPlus example, you accomplish this by placing vectors around key features on the subjects' faces. Figure 1 illustrates how the vectors are defined. Basically, you must place vectors on corresponding features in both the source and destination images. In this case, notice how the overall shapes of the heads are outlined, as well as the nose, eyes, and other more specific character lines on the subjects' faces. Keep in mind that the most effective morphs are achieved when the source and destination images are very similar. In fact, in many productions that you see on television, the creators have gone to great lengths to assure that their morphing materials were similar.

Once the main features are outlined, you can perform a test render to see what you have so far. By doing this, you can see what areas still need work and what areas you can leave alone. One trick that Hollywood professionals often employ is to use relatively low-resolution versions of their images so they can spend more time working on the morph and less time rendering. This is critical when a deadline is near and you have to render images at film resolutions that can be upwards of 4000x4000 pixels. It becomes quite clear that it is better (and faster) to use images that are much smaller (say, 640x480) for the design and testing stages of your morph. As long as your smaller images have the same aspect ratio as your larger ones, MorphPlus will scale your vectors to match your larger images when the time comes to do the final render.

THE MORPHER'S EDGE

When placing your vectors and defining edges, it is very important to remember a few key things. First, think of the entire workspace as an elastic sheet of rubber. When you pull on one portion of it, the effect is not limited to that area, but will affect the entire sheet (just as in real life). If you are not careful, you could get unwanted stretch marks in the morph.

These can be avoided, however, through the use of a strategically placed set of points connected by an edge. Points act as nails or tacks placed in the sheet of rubber to prevent the effect from spreading to other regions of the morph. The edge extended between the points acts like a bunch of little points in between the main points. Edges are a very important factor in making a good-looking morph, as an edge acts like many little vectors or points between the main vectors or points. Basically, edges save you from having to draw literally thousands of vectors to define your morph. Instead, you need only ►

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Picasso II RTG

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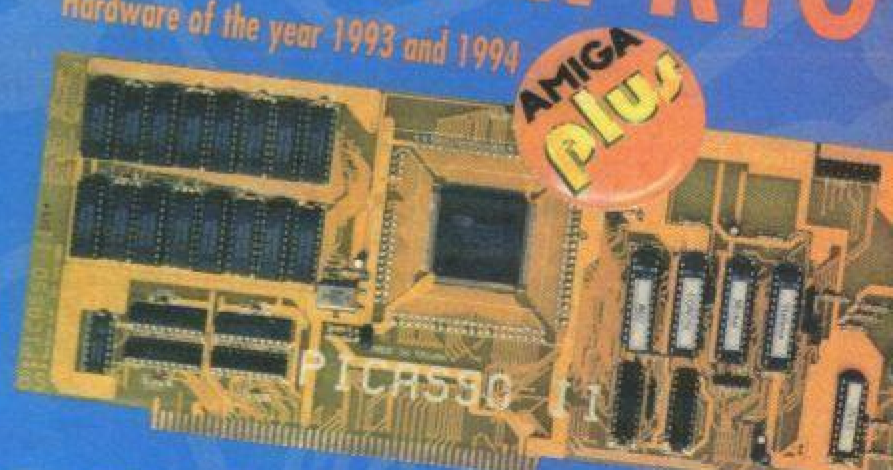

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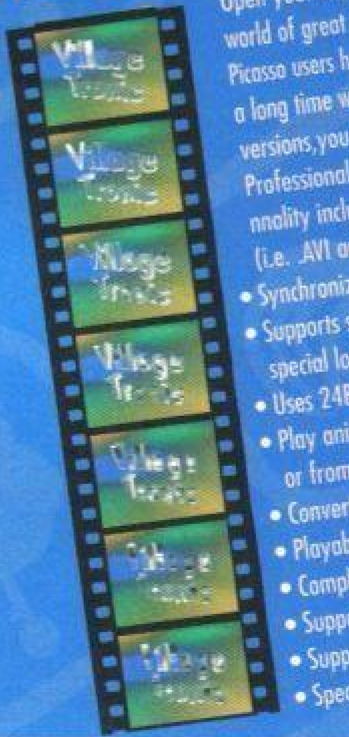

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c. Dealer inquiries welcome. All prices are Suggested U.S. Retail Price (SRP). Dealer prices may vary. (c) 1 place the vectors in a few key locations and connect them all the way around with edges.

In Figure 2, notice how edges are used to define the outer regions of the face and the key areas of the morph, such as the nose, eyes, and mouth. It is important to keep the outer edges (particularly the ones outlining the head) as close as possible to the subject's features. A tearing effect may occur, for instance, if a portion of the subject's hair falls outside the edge or if a piece of the background is included inside the edge. You may have to add more vectors to eliminate this problem.

A GROUP APPROACH

Also, when placing vectors and points, remember to place them on corresponding features on the source image as well as on the destination image. You may find it easier to view your vectors as source only, place them, and then switch your view (and vectors) to the destination image, where you place them accordingly on corresponding features. In addition, you will probably find it easier if you deal with your morph on a feature-by-feature basis—concentrating on a particular spot (such as the eyes). When you've finished with each individual area, hide that group of vectors and begin work on the next feature (say, the ears).

Grouping is a convenient way to handle large numbers of vectors and points. Grouping your vectors allows you to hide or show them as a batch. In addition, grouping allows you to take advantage of MorphPlus's group-motion and transparency controls. By grouping your vectors, you can save them as separate files to use in other projects or to simplify the current one. If you save your vector groups to disk, you can avoid having to place an entire new set of vectors if you want to use the old ones (somewhat like a pattern) in other projects. Figure 3 demonstrates how MorphPlus's Group editor can group different sets of vectors.

NOW IT'S YOUR TURN

These tips should give beginning morphers some guidelines for creating effective morphs on their own. For those who would like to try the project for themselves, you can download the images shown here. These can be obtained from Elastic Reality's vendor library on CompuServe (GO AMIGAV) in the file AWMorph.lha, or from the company's vendor area on Portal (GO ELASTIC). The images can also be found in the Amiga Product Demo section of Elastic Reality's support BBS (608/273-2426, 9600 baud, standard 8N1 terminal settings). If you have questions or comments, you can e-mail the company at ERISupport@ cup. portal.com (Portal) or 76004,1765@compuserve.com (CompuServe). ■

Chris Edgin has been a technical-support representative in the Amiga community for the past five years and has helped literally thousands of people make good morphs. He was also a technical writer for ICD and currently works as assistant support manager at Elastic Reality (formerly ASDG).

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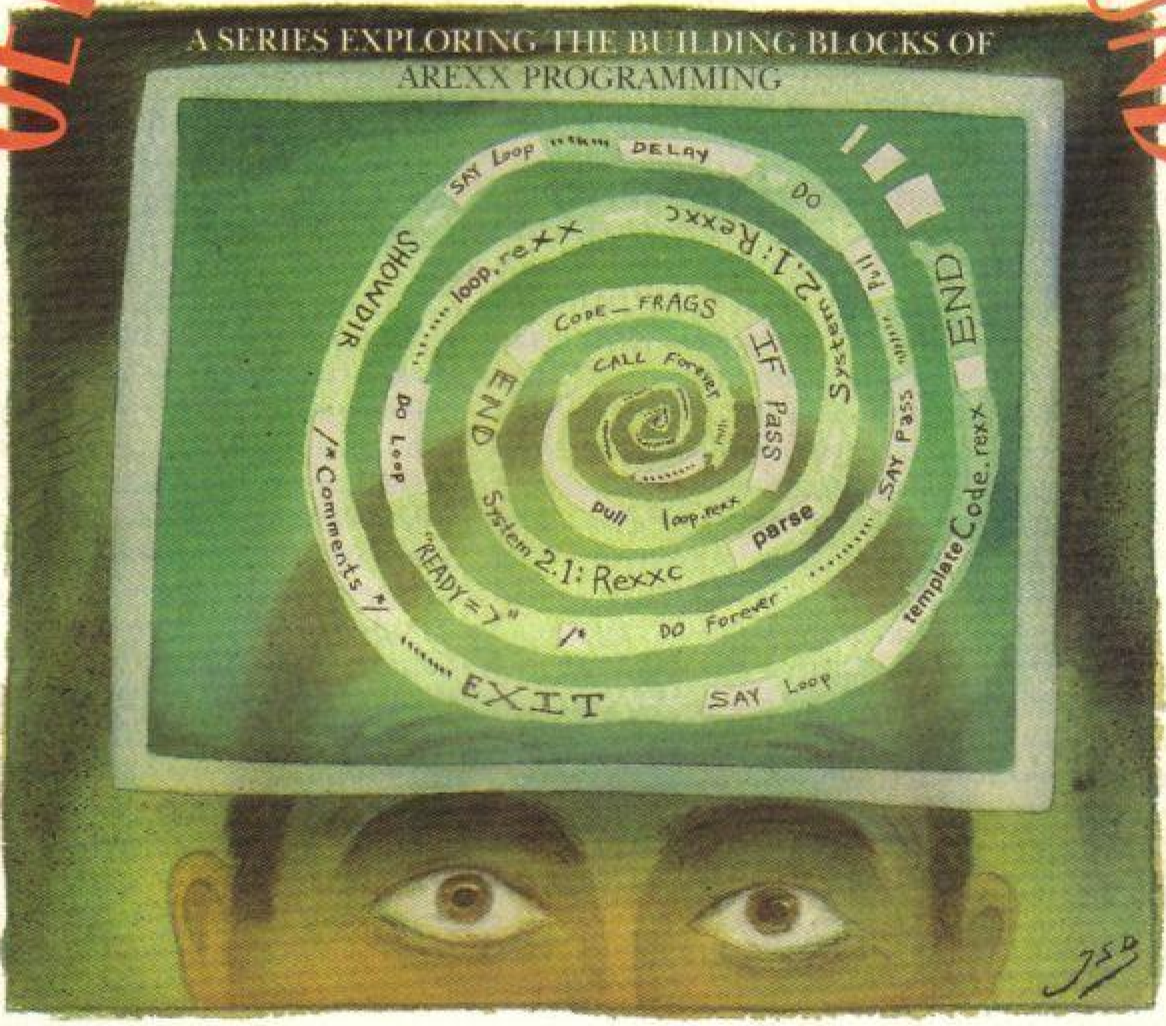
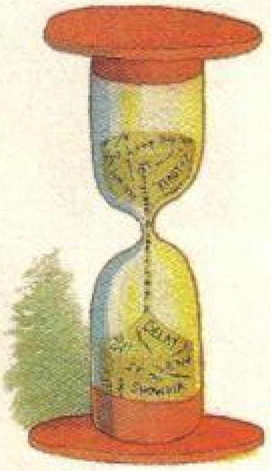
GETTING YOUR HEAD AROUND ARexx

A SERIES EXPLORING THE BUILDING BLOCKS OF AREXX PROGRAMMING


SAY Loop
DELAY
DO
System 2.1: Rexxc
loop.rexx
SHOWDIR
CODE_FRAGS
IF Pass
END
CALL Forever
END
DO Loop
SAY Pass
Code.rexx
/* Comments */
"READY=>"
System 2.1: Rexxc
pull
loop.rexx
parse
template
DO Forever
EXIT
SAY Loop

The intro to our new series shows you that "code fragments" are the basic ARexx building blocks—and you can begin learning to use them in just about the time it takes to boil a well-done egg.



Part 1

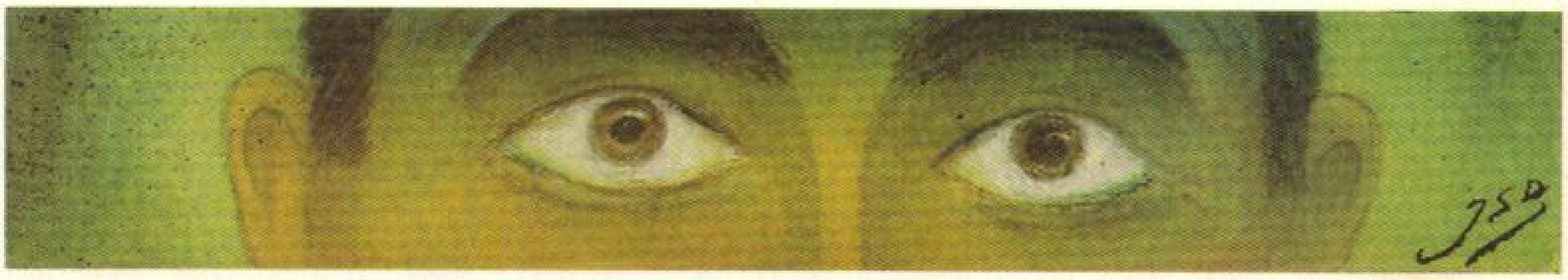
FIVE-MINUTE AREXX

DON'T START YOUR timer just yet—a little preliminary groundwork is necessary first. Everyone probably knows something about ARexx, has at least heard that software with an ARexx port is desirable, and that ARexx is worthy of exploration. But how? There's a lot of talk, but little by way of practical example. And why ARexx, anyway?

Because ARexx is a programming language for the Amiga, an expanded version of REXX, the "Restructured Extended Executor" language coined at IBM. It is often labeled a scripting, macro, or even "inter- ►

BY EDWARD J. GORR

ILLUSTRATED BY JOHN S. DYKES



process-communication" language; such terms just skirt the edges, describing subsets of ARexx's capabilities. It is all of those things, and more. It is a full-fledged, extendable language, and—as delivered—it is an "interpreted" language. This simply means that ARexx programs are retained in their humanly readable form, with each line read and translated into computerese every time the program is run. Such translation takes time, of course, making for slower operation in comparison with "compiled," or machine-language, programs. As this is true of all interpreted languages, don't let it bother you; just be aware of it.

ARexx, then, is a tool—a powerful one. It is symbolized by the REXX: device, which you may have noticed in listings of system assignments. If you know that ARexx is already running on your machine, that's great; the first step is done. If you're not sure, use the "Quick Tip" below to find out.

HANDLING THE TOOL

As with any tool, the proper use of ARexx requires thought and planning. What do you want to build using your ARexx hammer? Here are some possibilities:

- Nail an opening file requester to a program that doesn't provide one, so that you can easily search for and select a work file.
- Before starting a desktop-publishing program, reassign FONTS: to a different location so you access a specialized set of fonts more quickly; then, when the program ends, set FONTS: back to its original location.
- Enhance ARexx-compatible commercial software by adding commands and functions of your own invention. Prime candidates are TurboText, Art Department Pro, Imagemaster R/t, and even the Video Toaster software.
- Launch that "Shell-only" program by simply double-clicking an icon—you know, the program that required you to first open a Shell window, make an obscure assignment, type in a deeply nested file path, and then type cryptic command-option codes before finally hitting Return.

And on and on; these are just what came quickly to mind. I know they're possible because they, plus a lot more, have already been done. But what about *exploring* ARexx? How can you get your head around this language? One way is to start with the seven-line "heart" of a program—a code fragment.

You write ARexx programs using a text editor or a word processor. It must be capable of saving straight ascii text (maybe labeled "text only") and must create a Project icon upon saving a file. Commercial products (TurboText or ProWrite, for example) or public-domain editors (e.g., DME on Fish disk 530) will serve very well.

I will assume you know how to manipulate Workbench windows and how to open a Shell (or CLI) window. You should also have ARexx version 1.15 (dated Nov. '90) or later properly installed and up and running on your machine. Your ARexx documentation gives its version; if you're running AmigaDOS 2.x or later, you're all right.

Ready? Start up your text editor or word processor. Start your five-minute timer. Type the following, and don't worry about indenting and blank lines. Such formatting helps make it easier to read, but leading spaces and blank lines are ignored by ARexx.

```
/* OneLiner.codefrag.rexx */
greeting = "READY=>"
options prompt greeting
do forever
   parse pull line
   interpret line
end
```

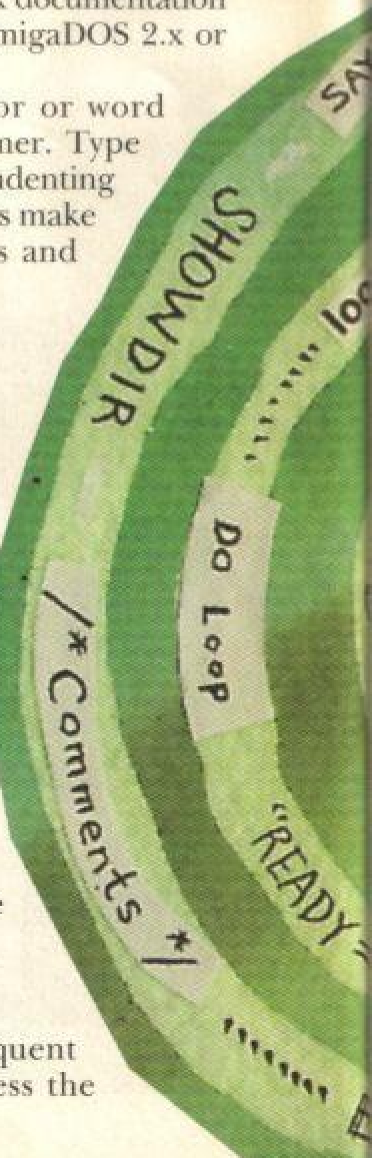
Save it as

```
rexx:OneLiner.codefrag.rexx
```

Remember to save it only as ascii text, so no hidden word-processor codes get added to it. Bring Workbench to the front, open a shell, type

```
rx rexx:OneLiner.codefrag.rexx
```

and hit the Return key. (In subsequent instructions, [RETURN] means press the



Quick Tip:

IS REXX THERE?

IF YOU DON'T know whether ARexx is up and running on your system, open a Shell or CLI window, type

```
assign REXX: exists
```

and hit the Return key. You should get the response

```
REXX       System2.1:Rexxc
```

or something similar. If you get a " . . . not assigned" message, try typing SYS:SYSTEM/REXXMAST, press the Return key, and try the "assign . . . " command again. If you still don't get the above response, then ARexx isn't available and it's time to contact an Amiga-knowledgeable friend, local users' group, or bulletin-board system (BBS) for help.

Return key.) You should see a new "READY=>" prompt appear in the Shell window, with the cursor waiting right behind it. You do? Then you are now a programmer! Or at least you've taken that first tiny step to becoming one.

Now type in X = 128 [RETURN]. Then type SAY X [RETURN]. "128" should appear on a line by itself between the last prompt and the one you're at now. If it does, you're doing fine; if it doesn't and you get no error message, end the program by typing EXIT, [RETURN], and you should be back to your normal shell prompt. If you *do* get an error message, you've already been dumped back to your original shell. Go back into your editor and recheck your typing. Use any error message as a clue to what might be wrong. The first line, the /* . . . */ stuff, must be there; check spelling, quotation-mark pairs, and so on. This one should be easy to debug (famous last words!).

This little program creates a fully interactive environment, allowing real-time experiments with ARexx instructions and functions. It accepts one line of input, up to 255 characters, then performs ARexx's magic on it when you press RETURN. "Interactive" means that the program keeps running, remembering all variables created and any adjustments you've made—unless you make an error or type EXIT. Enter ARexx instructions, assign values and strings to variables, manipulate them to your heart's content, and then perhaps use the SAY instruction to examine the results.

PROBING DEEPER

Let's open the door a little wider. At OneLiner.codefrag's prompt, type SAY ADDRESS() [RETURN]. The reply tells you what ARexx port is currently being talked to; it should be "REXX." Type ADDRESS COMMAND [RETURN], then type SAY ADDRESS() [RETURN] again. The reply, "COMMAND," says that you can now talk directly to AmigaDOS. Try typing LIST [RETURN]. Your current disk directory should go scrolling by. When that finishes, type just ADDRESS (no parentheses this time) [RETURN]. Type SAY ADDRESS() again to see where you are now. Back at "REXX," right? You've just discovered that ARexx starts with a default port, REXX, and if you change that a few times with the Address *instruction*, you can use the Address *function* (the one with the parentheses) to tell you which is current.

You get the idea. Pick other ARexx expressions and explore them in the same manner. When you're ready to quit, type EXIT [RETURN].

Now for some interesting fun! We'll adjust OneLiner.codefrag's icon for launch with a simple double-click of the mouse. At Workbench, open the RAM disk and find the document icon for OneLiner.codefrag.rexx. Click the icon—just once this time. Select Info . . . or Information . . . from Workbench's Icons menu to open the icon-information window. Go to the Default Tool text box, delete whatever is there, type RX in its place, and then click on Save. Back at Workbench, the RAM disk should still be open and the OneLiner.codefrag.rexx icon should look the same. Double-click the icon. You should again see the interactive window, with the now-familiar "READY=>" prompt. You do? Then you are now an applications programmer! Or at least you're on the way.

A few notes on usage of OneLiners: First, instruction groups like DO . . . END, or IF . . . THEN will work, but they must also fit the one-line limitation. Use semicolons to separate the pieces; for example, try:

```
DO 5 ; SAY "Hello, AmigaWorld!" ; END
```

You should be able to guess what will happen.

Second, to experiment with any of the functions in the Rexx Support Library (such as DELAY, SHOWDIR, SHOWLIST, etc.), insert a line in the OneLiner.codefrag.rexx program immediately above the "greeting = . . . " line:

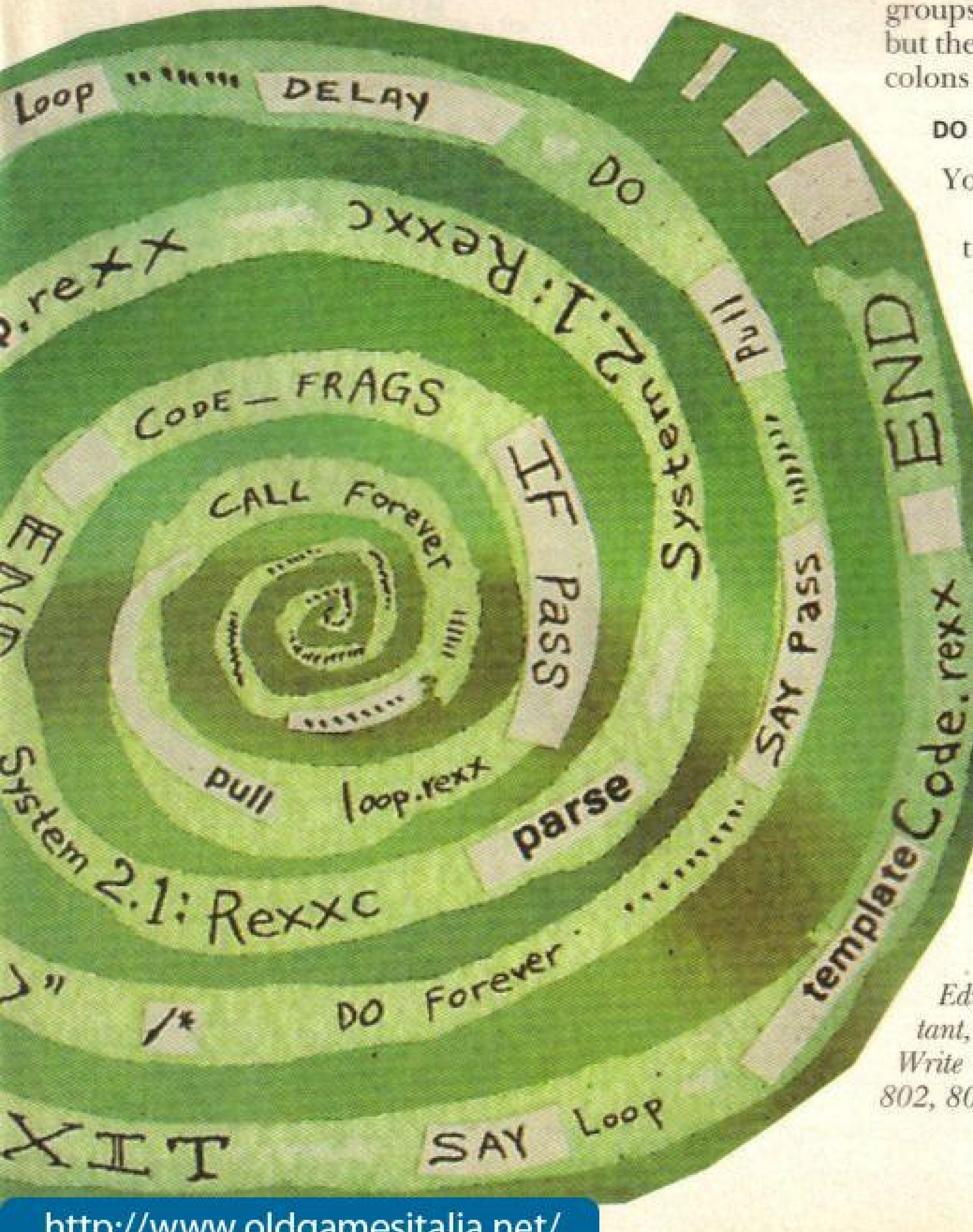
```
call addlib("rexxsupport.library",0,–30,0)
```

If there are other libraries' functions you want to play with, such as rexxarplib and rexxmathlib, initialize them in the same way. Add additional "call . . . " lines to the base program, replacing "rexxsupport.library" with the appropriate name. Then restart the program.

Third, OneLiner.codefrag.rexx is a bare-bones program. It has no error-trapping or problem-reporting features. If you make an entry or programming error, the program will exit. Upon restarting it, you'll have to reinitialize all needed variables.

Experiment and learn, and next time we'll explore further ARexx program elements. ■

Edward J. Corr, a self-employed engineer and consultant, uses his Amigas extensively for business and pleasure. Write to him c/o ***AmigaWorld****, Editorial Dept., PO Box 802, 80 Elm St., Peterborough, NH 03458-0802.*



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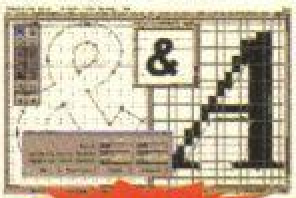

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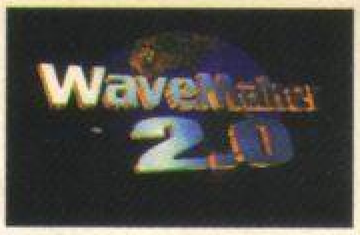

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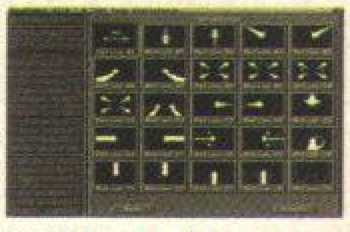

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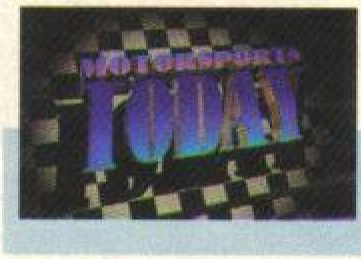

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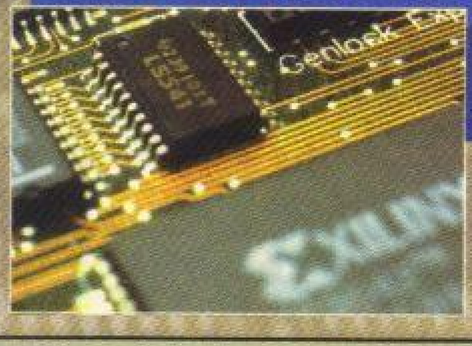

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GRAPHICS

Digital Scrapbooks

74

◆

A continuing series of tips, techniques, and tricks for creating more imaginative Amiga graphics.

◆

By Joel Hagen

WHEN YOU TRAVEL, do you bring back little souvenirs of the journey that were too interesting to throw away, yet later just wind up occupying drawer space? I'm thinking of things like ticket stubs, sugar packets, maps, menus, corks, pebbles, and other odds and ends. If so, this month's column explores the idea of incorporating such memorabilia into a digital scrapbook using your Amiga with a scanner or video digitizer. This can be a fun post-travel project, and you can effectively apply the techniques to professional illustration.

As Time Goes By

On any trip, save all the little things that catch your interest. Bring them back to your Amiga and arrange them on a scanner or under a digitizing camera. Capture and save images of these compositions, and they become digital scrapbooks of your travels that you can share with friends as easily as snapshots. This seemingly simple idea has more potential than might at first meet the eye.

You need not limit your scanner arrangements to flat items. Small three-dimensional objects such as pins, stones, arrowheads, shells, fishing lures, or any other intriguing debris can be scanned fairly effectively. Ordinarily, you save a pebble or a wine cork because it has associations for you at that moment with certain other things or experiences. Months later, out of context, the cork is often just a cork, the pebble just a pebble. It can be especially difficult to convey the original associations to others who did not share the experience with you. The creation of a digital scrapbook gives you the opportunity to preserve associations as well as images of objects. The wine cork, perhaps a memento of a special celebration, could be arranged on a scanner along with a menu from the cafe where the celebration took place. Add to this composition a page torn from a calendar, an autumn leaf pocketed that day, or anything else that seems appropriate, and the image preserves an entire experience.

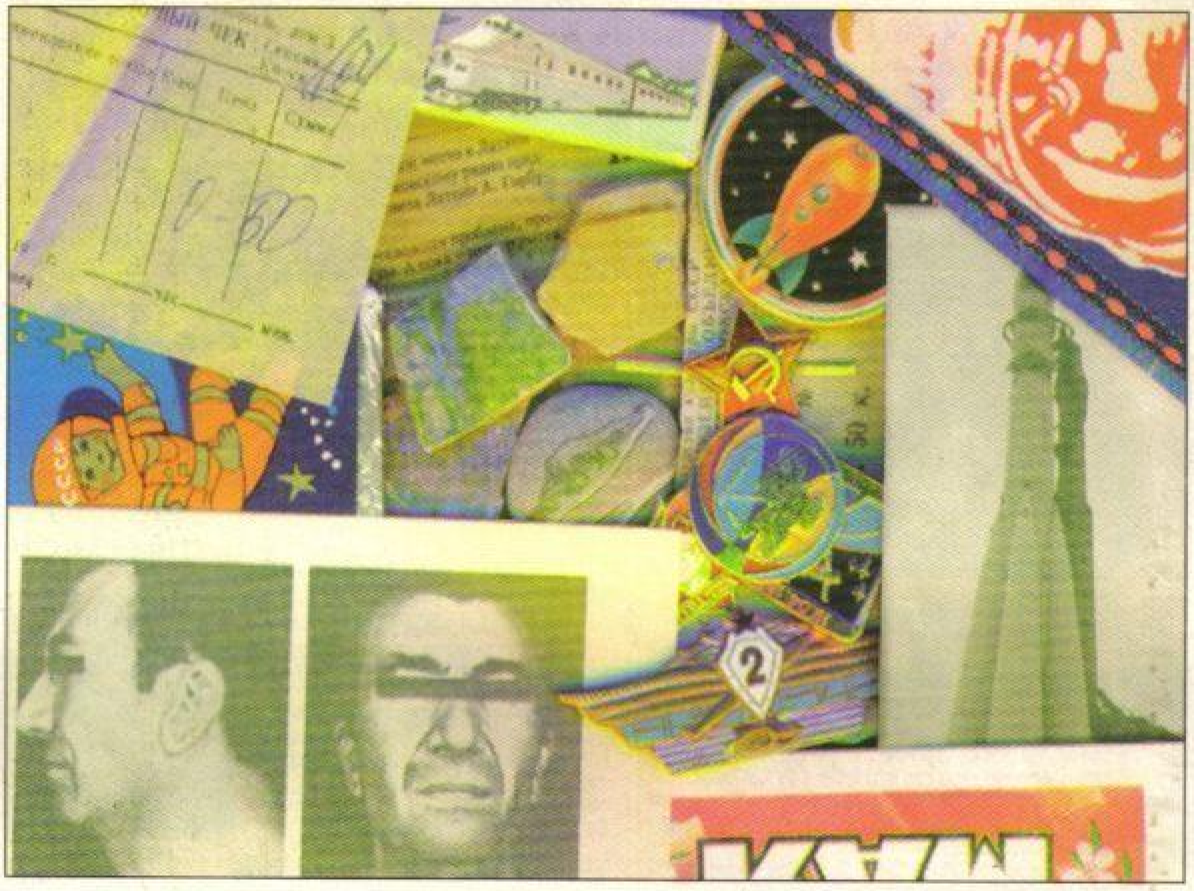
Digital journals also can be great family projects. After an outing, let the kids put together a digital scrapbook of the day's experiences. Have them save leaves, pebbles, bones, maps, and sketches. As they create the scrapbook, they can add text and labels if that seems desirable. In working on such a project, you should protect the glass bed of the scanner with a sheet of clear acetate before littering it with rocks and foliage. Before scanning, you can lay a piece of heavy fabric over everything as an opaque background. You may be surprised at how well three-dimensional objects scan. You will probably get some colored ghosts or auras around the edges of objects that are raised from the scanner surface, but these color artifacts are interesting and can be accepted as part of the look of the technique.

If you are using a video camera and frame-capture board to input images into your Amiga, you have even more freedom to incorporate 3-D objects into your scrapbook. You may find it most effective to aim the camera straight down at a framed region of a table within which you make all your arrangements. That frame is the area the computer will capture. If you work within those boundaries, you will not need to take time to adjust your physical setup for each image. If you are using a scanner, you can usually create a bounding box in the preview window that is the size of a full-screen Amiga image at whatever pixel resolution you like. From then on, that box can be positioned on any scanner preview to capture a screen-size image for your scrapbook.

Easy Does It

Freedom from fussing with equipment is one of the most important aspects of

A little imagination and a few basic scanning/digitizing techniques can turn a collection of mementos or other odds and ends into an interesting digital composition.



This image from a "digital scrapbook" of a trip to Russia incorporates photos, pebbles, pottery fragments, and other memorabilia. The approach can be an effective complement to snapshots, videos, and other types of journals you may keep.

the digital-scrapbook idea. These arrangements should be fast and fun. You see immediately in the computer image if the composition is what you want. If it is not, you simply rearrange the elements and try again. This is a playful way to encapsulate a trip, to refresh your memories, to retrace a journey. The arrangements should follow your whims, and the mechanics of capturing the images should be free of bother. If this kind of project becomes a major undertaking, you will probably never try it more than once. On the other hand, if you keep the mechanics simple, you may begin making digital journals as casually as you take snapshots.

Your digital journals are not intended to replace snapshots. They are a way to make use of a different medium to communicate in a different way. You will find as you do more and more digital assemblages that you develop a visual vocabulary quite different from your style of photography. In fact, you may find this a way to salvage a photo that holds an important memory for you, but is otherwise unremarkable. In a digital scrapbook, it becomes a new compositional element and takes on new life. It can reflect new meaning by the way in which you associate it with other images or objects.

The photo of the Vostok rocket in the accompanying illustration was an underexposed and basically uninteresting snapshot. It has greater interest, however, in this digital-scrapbook page by its association with other memorabilia from a trip I took to Russia. I used ImageFX 2 (Nova Design) to brighten the photo within the overall scanned image. Cycling the Region Selector to Poly made it easy to outline the photograph with a few mouse clicks. In the Fill Requester, I set Edge to Feather In with a Radius of 3. This allowed soft-edged color correction within a limited region by using the Balance controls. I also raised Gamma until the image of the rocket brightened and showed better detail. You can use similar techniques to reduce color ghosts at the edges of scanned objects. ImageFX 2 has a nice color-scan preview with excellent controls and effects options that make it a perfect scanner interface for projects like this. Its painting and photo-manipulation tools give you everything you need for touch-up.

Your digital scrapbook can be as simple as a series of pictures viewed with a directory utility like Diskmaster or Directory Opus. At a more complex level, you might use authoring software to control the display of the images in the scrapbook. This gives you the opportunity to add sound clips, transitions, and other effects. My choice is to keep it simple. Anything that adds to the effort of keeping a digital scrapbook takes away from its spontaneity and reduces the odds that you will stick with it and find a style within the form. There are many professional opportunities for artists who have developed a fresh look in digital illustration, especially in the emerging multimedia industry. ■

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sawyer, Oakdale, CA 95361. Please include a stamped, self-addressed envelope if you wish a reply.

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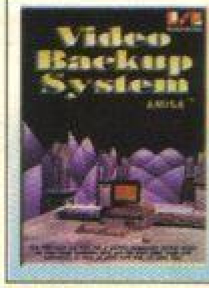

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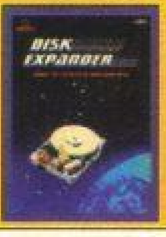

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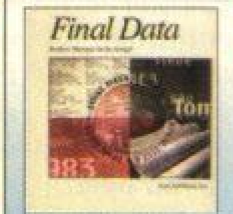

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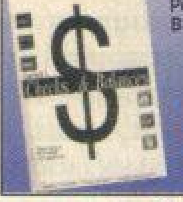

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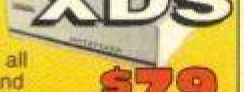

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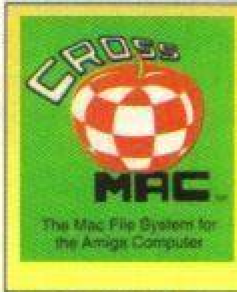

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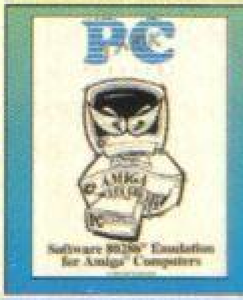

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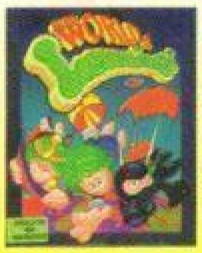

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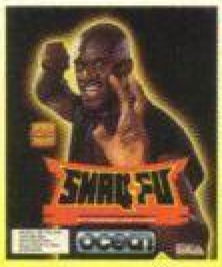

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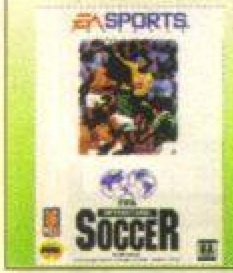

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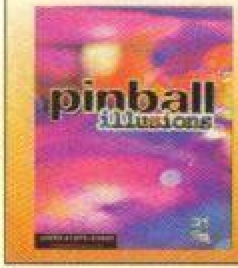

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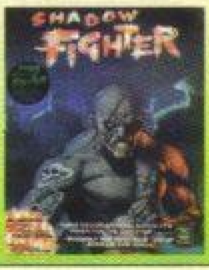

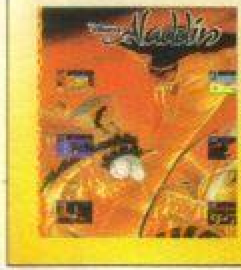

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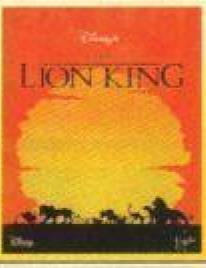

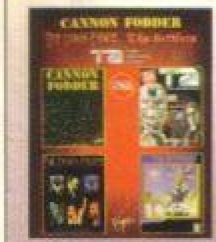

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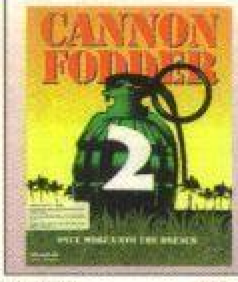

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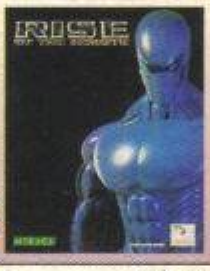

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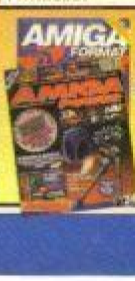

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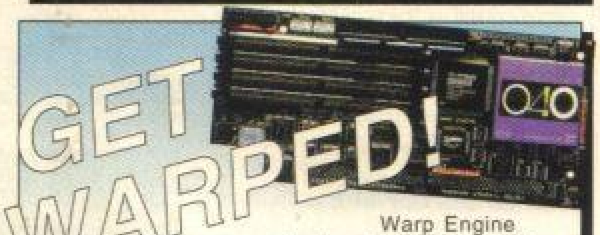

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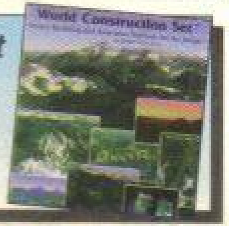

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From p. 11.

interested to know that Future Video is planning a new V-Station for Toaster Pro shortly. If you need A/B roll editing but are on a budget, the V-Station has a great deal to offer for the money.

—Paulo de Andrade

COBRA

DKB, $159.95

A1200

2.x/3.x compatible.

Minimum system: **A1200.**

Recommended system: **Same as minimum.**

Accelerator and RAM expander for the A1200.

For the A1200 owner who feels the need for speed, but also wants to practice a little fiscal responsibility, DKB may have come up with just the right answer: the Cobra accelerator board. Its performance isn't breathtaking, but for the A1200 owner still plodding along at 14 MHz with 2MB of slow chip RAM, the Cobra comes as a revelation.

OPEN WIDE AND INSTALL

The Cobra is designed for the A1200's bottom-side expansion slot, and the manual says you'll have it installed in a minute or less. Not likely. The Cobra is a snug fit and requires more than a little jiggling just to get the computer's male card and the board's female connector lined up. Then you have to figure out how to push the board onto the male connector with no finger space at the far end of the Cobra card. There *are* two small holes into which you can get a very small screwdriver to use as a leverage device, but DKB does not recommend doing this. Rather, they advise that a push on the 150-pin connector should help.

The Cobra comes with a 68030 chip (the full version with MMU) running at 28 MHz. It also includes a socket for an optional math coprocessor and a single SIMM socket for RAM expansion that's designed to accommodate the 72-pin SIMMs available at any computer store in sizes of 1, 2, 4, 8, and 16 megabytes. (If you can afford them, 32, 64, and 128 megabytes are also supported.) I used a 1x32 SIMM, which translates into 4MB of fast RAM. Promised by DKB, but not available at the time of this review, is an optional SCSI adapter that mounts to the Cobra.

DOUBLE YOUR FUN

Once the board is in, the lid closed down again, and the power on, the performance-standard testing program, AIBB, reveals that the Cobra provides integer performance 1.97 times faster than a stock A1200 with 4MB of fast RAM and 2.6 times faster than a stock 2MB machine. My test unit didn't come with the optional Floating Point Unit, but if you use software that supports a 68881 or 68882 math chip (3-D rendering, CAD/CAM, and some 24-bit graphics programs), you can expect an improvement of 8 to 10 times in floating-math calculation speed!

Along with the board, DKB supplies a software program that moves Kickstart into fast RAM if you've installed a SIMM chip on the Cobra. Although DKB claims that this further increases performance, AIBB revealed little, if any, improvement.

DKB has enjoyed a fine reputation for turning out solid hardware at reasonable prices, and the Cobra accelerator is no exception. With a street price of around $160, its ability to at least double the working speed of most A1200s, its industry-standard SIMM RAM-expansion capability, and the promised SCSI-adapter add-on, the Cobra deserves a very high rating indeed.

For speed demons on a tight budget, I recommend the Cobra highly. And for those with a few more bucks to spare, stay tuned for some new, faster A1200 accelerators from DKB.

—Gary Ludwick

WORDWORTH 3.1

Soft-Logik, $225

All Amigas.

2.x/3.x compatible.

Hard-drive installable.

Not copy protected.

Minimum system: **1MB, WB 2.0. or later, hard drive.**

Recommended system: **Accelerator, 4MB, PostScript printer.**

Option-laden word-processing software.

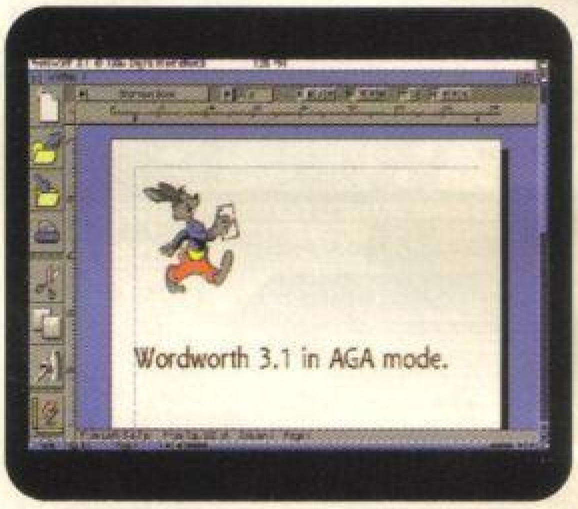
When Soft-Logik recently started distributing Digita International's Wordworth 3.1 (WW3.1) word processor, there was cause for celebration. Along with Softwood's Final Writer 3, it's one of the only two major commercial word processors that remain available for the Amiga market.

Designed in the UK and sold there for years, Wordworth is a full-featured, professional word processor that many Amiga users on these shores have longed to enjoy. With so many recent Amiga products exhibiting an air of hasty programming and packaging, it's refreshing to receive a serious package with a high-quality, bound 340-page instruction book and separate Print Manager booklet.

IN PLACE AND RUNNING

To create this review with any other word processor would be blasphemous. I therefore wrote this review with Wordworth 3.1 installed on both an A4000 using OS3.1 and an A2000 operating under OS2.1.

The four disks comprising the package use the standard Amiga Installer program, making installation a relatively speedy process. The Installer places numerous items on your hard disk, including the program, a thesaurus, a spelling checker, AmigaGuide Help files, additional disks of TrueType fonts, and a welcome assortment of such programs as memory and disk-drive utilities.



Wordworth 3.1 in AGA mode.

Examples of text and graphics in Wordworth 3.1.

Once everything is in place, you can configure WW3.1, including PostScript printer options. In either AGA or standard Amiga configuration, the program provides an attractive but busy interface that's a tad intimidating due to its many buttons. A series of configurable buttons appears on the left side of the screen, making menu selection just a mouse click away.

Some of the functions and "rollover" menus appear entirely different under OS3.1 than under 2.1, which is evidence of hooks that take advantage of AGA operating systems. You can tailor the interface to include as many or as few buttons as desired.

By default, WW3.1 operates under its own custom screen, but you can configure it to run on the Workbench on both AGA and standard Amigas. Wordworth proved ►

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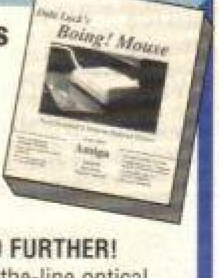

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2120 E. MORELAND BLVD. SUITE L, WAUKESHA, WI 53186 a fast performer on both the A4000 and A2000.

Long-time Amiga users will quickly notice that WW3.1's file requesters are of the ASL variety, with similar speed and functionality, but display some slight differences in appearance. Many keyboard equivalents complement the menu system, using the universally accepted Amiga-x, Amiga-c, and Amiga-v sequences for, respectively, Cut, Copy, and Paste functions. The Save As function uses the Amiga-a sequence.

Wordworth offers a unique AmigaGuide-based help system. Calling up the Help menu at the top of the screen or clicking on the question-mark button at the left activates AmigaGuide. The primary menu option called "How Do I . . . ?" displays an AmigaGuide document providing an exhaustive interactive list of details on how to perform everything from adjusting page margins to using document templates.

The program's graphics capabilities are first rate, arguably better than those found in some DTP programs. WW3.1 lets you import TIFF, GIF, IFF, and several other graphics formats. To place an image within your document, you simply use the mouse to position it, and then press the mouse button. Eight included pieces of clip art install along with the the program, and you can also easily import your own.

THE PRINTED WORD

Well-designed touches include PostScript and non-PostScript printing options worthy of any word processor on any platform. Kerning and tracking adjustments let you give your text a professional layout. There's also a variety of drawing tools at your disposal for creating lines, boxes, ellipses, and freehand designs.

The Save As option allows for six different text formats, including WordPerfect and plain ascii text. I found the latter option somewhat disappointing, as it converts the soft returns created by WW3.1 into hard returns. There *is* an option for either hard or soft returns when saving ascii files, but it creates two spaces wherever soft returns occur in the original document. Regardless of the option used to save ascii files, you should plan to spend time performing an extra step or three if you use WW3.1 as a text editor for your terminal program.

CURIOUS CONVENTIONS

The included thesaurus, like the spelling checker, is fast and accurate, but filled with British, rather than American, word usage. Adding new words, however, requires just a click of the mouse. While it does a commendable job of rapidly listing synonyms—using either the mouse or hotkeys—the process seems incomplete in that it does not offer even brief definitions.

Also, some colorful artifacts mysteriously appeared around buttons when running WW3.1 on the A4000/040 using AmigaDOS 3.1; however, they seemed to have no effect on the operation of the program. The A4000 did lock up on occasion, but I attributed that to importing colorful graphics with MagicMenu running in the background.

CONCLUSION

Wordworth's broad array of options, its wonderful, highly configurable interface,

Continued on p.44.

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From p. 40.

and its ability to generate high-quality output make any minor gripes insignificant. It is a remarkable product, most welcome in a market that sorely needs more applications of this caliber.

—Tim Walsh

Personal Paint 6.1

DKB, $99

All Amigas.
1.x/2.x/3.x compatible.
Hard-drive installable.
Not copy protected.
Accelerator compatible.
***Minimum system:* AmigaDOS 1.2 or later, 1MB RAM.**
***Recommended system:* 1+MB chip RAM, hard drive, accelerator.**

AGA-compatible paint program.

Personal Paint 6.1 (PP) is an update to the version 2.1 that I reviewed in the September 1993 issue of *AmigaWorld*. PP now provides AGA support, while retaining compatibility with earlier Amiga chip sets. It also supports multiple ANIM formats, additional image-processing filters, and alpha-channel capability. Virtual RAM, autoscrolling, Amiga Datatypes, and 24-bit graphics support are but some of the improvements.

Easily Customized

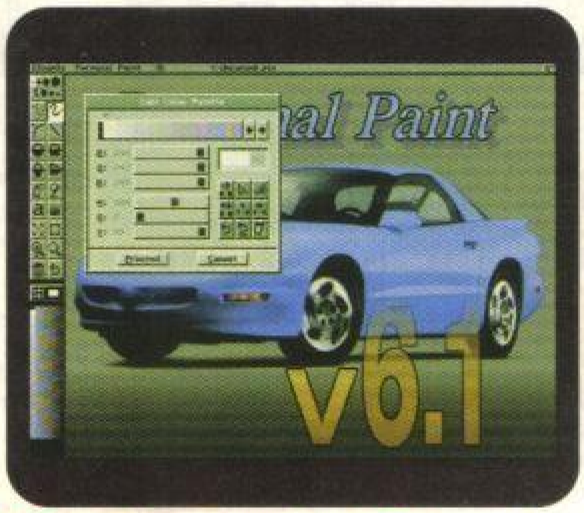
PP not only looks and feels much like DeluxePaint, but shares many of its keyboard equivalents. Basic tools, brush operations, stenciling, palette, remapping, and spare-screen functions are similar to DPaint's. PP's menus are available in English, German, Italian, French, Spanish, Dutch, and Swedish—or you can create your own custom menus in any language.

You can modify preassigned keyboard equivalents in the menu or add custom ones of your own. Much of the program's environment, the virtual-memory usage, and even the Toolbar graphic are also customizable.

While the program now loads GIF, HAM, and HAM8 files, as well as PCX and IFF-ILBM in up to 24-bit color, it displays only register-based images, so it converts graphics files to a register-based palette format. It now supports image datatypes and saves images in IFF-ILBM, GIF or PCX, an Encrypted format, and in C source-code format. And PP now supports the Picasso, Retina, Piccolo, Rainbow, EGS, and Talon graphics boards.

Animation Possibilities

Personal Paint's animation tools are basic at best, with no Move or Tweening requesters, and no animbrush function. It does, however, provide individual-frame playback speeds and multiple palettes. Setting the playback speed of one frame for sixty sixtieths of a second eliminates the need for 29 extra frames for a one-second still animation. A slider on the Go To Frame requester flips through the animation in real time, and it's fun to use.



PPaint offers exceptional AGA graphics.

The Storyboard requester displays thumbnails of fifteen frames at once, with a slider gadget for scrolling through the thumbnails. Editing tools let you cut, insert, add, and delete frames, and create color spreads between multiple palettes.

PP supports Anim5, combined Anim5/Anim7, Anim7 short- or long-word, and Anim8 short- or long-word formats. While it can take advantage of all optimization options built into the ANIM standards when saving to disk, you can turn off this feature to keep your animations compatible for playback with older programs that did not use optimum compression.

Image Processing and Stereograms

Personal Paint has many other features, such as palette merging, color statistics, color reduction and Floyd-Steinberg dithering. The new image-processing functions and variations bring the total to more than fifty. They include blur, sharpen, emboss, negative, watercolor, edge-detect, lighten and darken, randomize, and even more.

The Edit Filter requester lets you define your own filter matrices and modify existing ones, and you can apply image processing to brushes, the whole screen, or to such smaller, user-defined areas as rectangles, freehand shapes, or brush objects. The new Transparency filter provides partial rubthroughs and transparent brush application. Although you can use the new Alpha Channel transparency capability only when applying brush objects to the image, it provides custom transparency control of the brush area.

New processing filters produce two types of color stereograms: SIRDS (Single Image Random Dot Stereograms) and SIPS (Single Image Pattern Stereograms). Stereogram combines gray-scale 3-D patterns loaded into the swap screen with any colorful image you load into the main screen. It can also combine a brush tile pattern with the 3-D gray-scale image to produce stereograms. It's fast and easy to use, taking only a few seconds to combine the images to create a fascinating stereogram.

PP's palette requester produces color spreads based on hue or luminance, and it sorts the palette from light to dark or dark to light. You can flash any color on screen to show its location throughout your image. There are also contrast, brightness, saturation, and red/green/blue adjustments in the Adjust Palette requester. PP also supports Colorfonts, scalable fonts, and even scaled bitmapped fonts, and non-destructive text entry keeps text off the screen image until you turn off the text-entry function or reposition the cursor with the mouse.

Personal Paint supports PostScript and Preferences printers, and it includes improved Preferences printer drivers for four-color printing in HP DeskJet or HP DeskJet 550C. There's also an interesting brush Shear tool that behaves like a combination of shear and perspective, and you'll find a Curve tool that produces Bezier curves with movable end points and two control points for adjusting the curve's shape.

A Bit Lacking

As with most programs, there are a few shortcomings. For instance, Personal Paint still lacks a Symmetry tool, and the fill patterns remain limited. Furthermore, there is no ARexx support, and the Floyd-Steinberg dithering calculations tend to be slow when remapping or reducing colors, even on an A4000/040 with 18MB of RAM. It is also excruciatingly slow when loading and converting 24-bit or HAM8 images into the current screen format, but I must admit that the eventual result is excellent.

Personal Paint 6.1 is nonetheless a solid performer. Users of ParNet can now rest easy with Personal Paint 6.1, for the earlier problems have been solved. Its unique features and special abilities with 2-D animation should make this improved Personal Paint a fine addition to your graphics arsenal.

—Fred Hurteau ■

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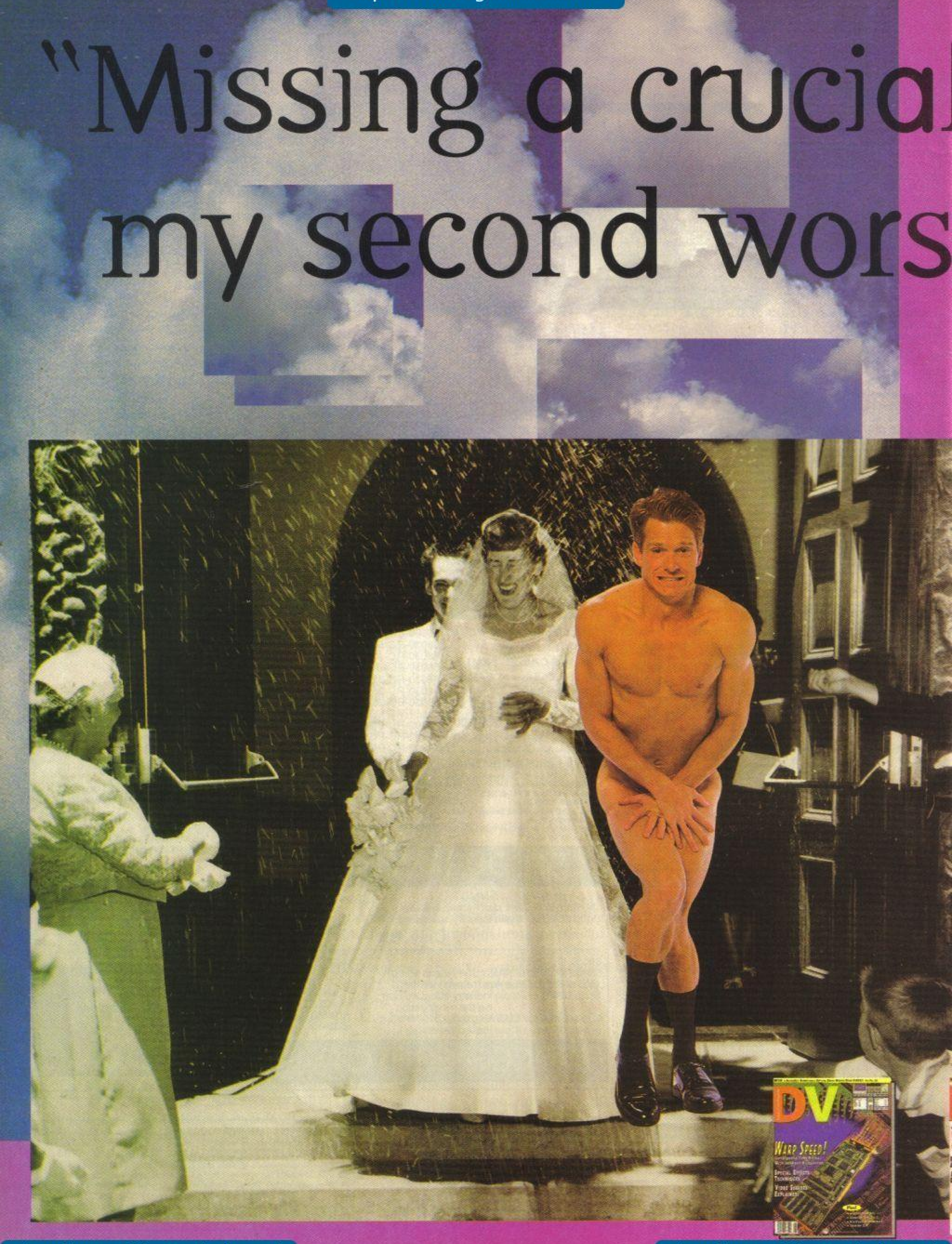
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TOWER ASSAULT

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WITH TOWER ASSAULT, ***Team 17's*** Alien Breed series of action games at last begins to come into its own. These overhead-view maze shoot-'em-ups have always been fun, but a rather basic brand of fun. They got bigger and prettier over the course of three games, but never moved beyond the Into the Eagle's Nest/Crackdown foundation on which they were built. Bottom line: They felt like a bunch of levels. Tower Assault doesn't. The 65 large areas—both indoors and out—have been knit into a careful, coherent whole, and the result seems almost like an adventure game.

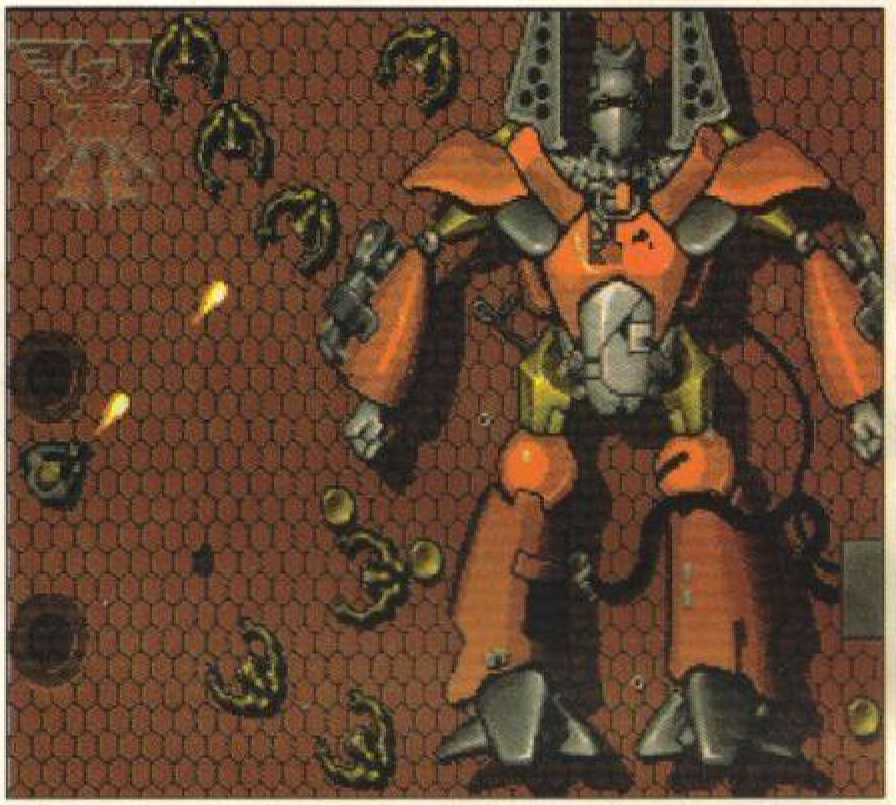
Well, OK. An action-adventure game. You're the only survivor of an attempt to retake an alien-infested human base on Arazin 2E, built around seven great, interconnected towers. And you're still running around messy hallways—the best-looking messy hallways yet—greasing the Breed and collecting keys, ammo, first-aid kits and money. (Everybody who lives here may look like last night's chicken dinner, but you still have to pay for your guns.)

The main instrument for this new approach is the "smart-cards" strewn about the landscape—electronic text messages that keep you posted on your position and what needs doing in a given region. They're plentiful, concise and poignant, and nicely supplemented by entries on the familiar INTEX terminals. The story, which so often seems an afterthought (or a neverthought) in arcaders, is always a step away.

Another major plus is a new open-endedness. This isn't another ladder of sequential levels. Team 17 reports that there are more than 250 paths through the game, and I believe them. Any given area may have several exits, and that also lends itself more to a sense of place. (The game's more rational in other respects as well. You can now fire while walking backward, and, indoors, summon a map of your surrounding at the press of a button.)

Finally, there's a level of spectacle and charity here normally associated only with IBM games. The CD32 version opens with an amazing 7-minute movie—created with the Raptor—which is better seen than described. And Alien Breed II is included on the CD as a freebie.

On the other hand, I'm disappointed that the CD32 version doesn't use more in-game speech—it could use a human voice—or a conventional save mechanism in lieu of the 16-letter passwords. And the enemy AI is almost nonexistant. There may be more types of aliens here, and more ways for them to appear, but they always to make a beeline for the player, like idiot linebackers after a ball carrier, with no consideration for either personal longevity or a larger alien agenda. They never open a door, never use supplies, never retreat, never force an issue. Consequently, since you're basically fighting drones, no sense of hug-yourself danger accompanies Tower Assault, and occasionally the bunch-of-levels, shoot-'em-up feel comes flooding back.



Tower Assault: Team 17's latest adventure in the Alien Breed series.

Then again, each of the AB games to date has represented an incremental step forward. But a step to where? Perhaps the next game—Alien Breed 3D—holds the answer.

3-D FREE-SCROLLING UPDATE

(Editor's Note: This update to "Special Report: 3-D Free-Scrolling Action," Dec. '94, p. 56, uncovers the latest crop of Doom-style games.)

Open fire. The first bona fide Wolfenstein-style Amiga games have arrived—yes, with monsters, weapons and everything—in the form of a commercial offering from England and a shareware game from France.

And that's not all: The authors of Doom-style demos have in many cases created advanced versions of earlier designs, and some new players have entered the scene.

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Some complications have been wound around the basic Wolfenstein theme—kill everybody in your path and find the exit—to enjoyable effect. For one thing, you also have to complete a mission—blowing up reactors or disabling a mine, for instance. A split-screen, two-player mode (either competitive or cooperative) gives the game a hard edge. (The game is really designed with a second player in mind.)

The wall graphics change with every level (only to repeat later), and developer Apache Software has done a good job using shadow and light fixtures to give a sense of texture to ceilings. The sound effects are good—especially the crisp "clack" of newly collected ammo and the hollow spin of the slowing mini-gun—and the enemies are well drawn.

But those touches need a compelling game engine to bring them all together, and it's here that things go awry. The game lacks Wolfenstein's basic freedom of action: You can move only in the four cardinal directions and in a style more closely allied to the incremental movement in Electronic Arts' Space Hulk and Psygnosis' forthcoming G2. The rotation just doesn't feel like rotation; it doesn't seem that there's a 3-D place around you so much as a view of a place. (Doom may have used coding trickery to make a 2-D world appear 3-D, but the trickery was well concealed.)

An automapper is included, but it gives away the game (it shows everything) and is activated in the disk-based version only by waggling a joystick frantically up and down—a technique that can get you good and confused when you return to the action and realize you're no longer facing in the same direction. (The CD32 version allows you to summon the map by hitting a button.)

Blood flows freely in combat, but, oddly, explosion animations have been omitted. (Objects flash when struck and vanish when destroyed.) Enemies often appear at higher elevations, but never react to your presence and, when encountered later, prove to be on your level. And there appears to be a bug that sometimes prevents you from hitting enemies separated from you by an open door.

Some of these shortcomings were probably concessions to keep the playfield level for Europe's not-insignificant 1-meg A500 crowd, with the happy result that Death Mask runs at a healthy clip on any Amiga. However, an unhappy side effect is that it feels more like an arcade game than its obsessive model. (C+)

FEARS *(BOMB)*

At its heart, this shareware taster from Bomb Software is much closer to Wolfenstein 3-D in feel than Death Mask. This AGA-only action game really scrolls, at a good speed and in any direction. It looks good, it has a solid automapper and plenty of secret doors. (Even secret doors behind secret doors!) The "feel" is on the mark.

But it doesn't exactly set the teeth on edge. The range of wall tiles, enemies, and sound effects is quite limited, the design of the sample level is mundane, and not everything works quite as documented.

Then again, it is a shareware game, and a demo at that. (Ten bucks gets you the full package of 10 levels.) (C+)

ROBINSON'S REQUIEM *(SILMARILS)*

Properly speaking, this free-scrolling game of survival is much more RPG than action game. But this breed is increasingly rare these days—an English version of Ambermoon never appeared—and it may well appeal to devotees of this genre who want more challenge than pointing their gun in the right direction.

The challenge is formidable, and "requiem" proves to be just the word. Death hangs over the game like a cloak. As a downed pilot in a bare, hostile, and sometimes downright weird envi- ►

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It's well worth the time and thought you'll have to put in. (Don't worry—you'll eventually reach an epiphany at which it all begins to flow together.) There's nothing quite like Robinson's Requiem for sheer intensity and detail in maintaining one's physical well-being. It's also a genuine 3-D environment. You can climb on top of the surrounding hills and peer down on the leafy plain you just left.

Alas, the game's speed is wretched. Even on a 40-MHz A1200, I had to knock the view window and detail for the AGA version down to the lower settings to achieve something resembling smooth movement. (There's also a standard Amiga version.) And you can't talk to other characters. *They* just talk at *you*. (B+)

ALIEN BREED 3D *(TEAM 17)*

After quietly dropping the project in the shadow of Doom some months back, England's most dedicated Amiga game publisher is again forging ahead with Alien Breed 3D for Easter release—using the game engine devised by Andrew Clitheroe (and featured in December's *AW*).

It will be for AGA machines only, and will support hard disk and accelerators. (The game should run 7–8 times faster on an A4000 well supplied with RAM.) Features will include multiangle walls, light sourcing, more than 18 objects on screen at a time and an optional full-screen display.

Also, unlike Doom, Alien Breed 3D will offer a true three-dimensional environment in which more than one object can occupy the same vertical plain. In other words, it allows you to have bridges, and rooms on top of other rooms. (Doom's creators won't be implementing that feature themselves until Quake, slated for release in late '95.)

Brown said Team 17 has seen a number of engines that run faster, but not with this level of texture mapping. "We could speed things up," he wrote in a message posted to the Internet, "but we want *detail*!"

(Note: AB3D may not be the last of it. The rumor mill suggests at least two other major Amiga developers are contemplating Doom-style games.)

POOM 0.3B *(JUSSI SALMI AND JANNE JUHOLA)*

In this beta, at least, the basic rules of Poom 0.2 still hold true. To paraphrase Shirley Jackson, walls continue to meet at right angles, floors are firm and flat, and whoever walks in Poom, walks alone.

The good news is that the much-anticipated third incarnation of this great, forbidding demo is finally game-bound. A roughly drawn hand and pistol now adorns the foreground—firing soundlessly via the shift keys—but there doesn't seem to be anything to blow away in this version. However, you roam this new level (which contains a number of striking new wall graphics) in resolutions up to a full-screen 320x256 at decent speed on an '030-equipped A1200.

And that's with textured floor and ceiling. Now, how about a little sound?

TEXTDEMO6 *(JOHN HENDRIKX)*

In which the author makes the transition from a Wolfenstein engine with Doom graphics to a real Doom engine. Raised platforms, textured floors, and a Doom-like bounce in the player's steps are among the pleasant additions that appear in this unreleased beta.

Of course, the thing about betas is that they aren't done. TextDemo is slated to include multiple-height walls (which make things like staircases possible). And monsters? Also still to come. A skeleton hangs across a doorway in this version, but doesn't do anything. However, I'm told the final version will have critters, and that you'll be able to whack them with fireballs that illuminate the room as they fly by.

DENTAKU 26 *(SILLTUNA)*

Alex Amsel's game engine has come a long way from the original DentAWolf demo. This AGA game-in-progress is now called Dentaku 26, and it's among the best pure Wolfenstein-type games I've seen—even in this early, unpopulated form. The version sent to me last fall was brimming with graphic detail, with see-through walls, textured ceilings and floors, a vivid viewscreen, and even a few corpses on the floor for good measure. (The monsters that killed 'em were evidently all on break.) It all runs briskly on a '030-based A1200, too.

A level editor is slated to be included when this surfaces in spring. And Amsel reports that Amiga musician extraordinaire Allister Brimble has signed on to handle Dentaku's sound.

WARP S *(OLIVER GROTH)*

Groth's Jabberwocky Texture Mapper has likewise undergone a metamorphosis. Warp S, as it's now called, has moved indoors, in the process gaining speed and monsters (who trundle about on fixed routes and pay no attention to you). But it also appears to have lost some of its definition and its fine, Doom-like effects. And it may wind up as an IBM game instead. (Like the IBM needs another Doom-style game, right?)

AMIGA-WOLF3D 1.1 *(STL/DAMAGE)*

It's a shame this Finnish demo has seen only limited distribution, for it captures the Wolfenstein feel almost perfectly in its effortless flow and array of simple objects and hot colors. A few German soldiers running about, yelling "Achtung!" and "Luftwaffe," and we'd be all set. (There's not much collision detection, though.)

MOTION *(BOMB)*

A worthy followup to Origin's Complex. Motion migrates through the usual polygon rotations and overflights of Comanche-style voxel landscapes to a Doom-y tower climb—all the while running speedily and in full-screen mode on an '030-based A1200.

The kicker is that, just before it ends, it turns the control over to you, allowing you to explore this stony landscape at will. Not to mention taking a fall off the tower—an effect we haven't seen to date. Really excellent stuff. (Unfortunately, it does have a glitch that turns up when you walk too close to a side wall.)

KILLING TIME *(OXYRON)*

The 3-D portion of this four-disker is significant, but amounts to an exercise in animating wall tiles. Some nice effects, too, but the tiles themselves don't seem quite connected to one another. (It's rather like looking at splayed playing cards.)

PSYCHEDELIC *(VIRTUAL DREAMS)*

Nice floor and ceiling textures, but, like VD's earlier Full Moon demo, this segment—a scant few seconds of a three-disk epic—is over almost as soon as it begins. (And actually, the 3-D part is the least interesting of the effects here.) ►

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I SHOT KURT COBAIN *(RAZOR)* & QUARTEX *(QUARTEX)*

The size of these two entries in The Party 1994 demo competition (under 40K) is more impressive than their contents. The low-res scroll through a lit-up town in the irrelevantly titled I Shot Kurt Cobain is rather pleasant—even without much depth of field. However, the 3-D segment in the Quartex demo is utterly nondescript. Lots of people are pushing this technology now, but if they're not going to do something new, why bother?

WOLF 3-D *(TERENCE RUSSELL)*

An omission. This Wolfenstein-style demo has been around at least since last summer, but, due to space constraints, it was left out of the December roundup. Itty-bitty in scope (some of these demos cover less territory than a suburban duplex) and less attractive than the competition—it uses black-and-white wall tiles against a harvest-orange backdrop—this moves OK. But, by now, it's likely to seem quite dated.

GAME BITS

Rise of the Robots *(Mirage)* is just the name for this beautiful beat-'em-up. All chrome, no gameplay (D). **Bubble & Squeak** ***(Audiogenic)*** is an utterly charming platformer that at once reminds me of Mindscape's unpretentious Alfred Chicken and the Calvin & Hobbes comic strip. It has heart, this one (A-). **Bubba 'N' Stix** ***(Core Design)*** is a tough, inventive arcader in which you'll have to sort out how to use Stix—it's a weapon and a tool—to further the doofy-looking hero's progress (B). **Naughty Ones** ***(Interactivision)*** is cute Danish platform fun that manages to evoke the feel of MicroProse's Rick Dangerous games without looking like them (C+/B-). ***Ocean's*** **Mr. Nutz** is a style-to-spare Super Mario World clone—a mix of angled-down adventure and side-view arcade—featuring a feisty squirrel trying to free a chicken-dominated world (B+). And the more recent **Kid Chaos** is a classic Sonic the Hedgehog-style platformer that even goes on hard disk (A-). **Banshee** ***(Core Design)*** looks like Capcom's 1942 with Chaos Engine graphics, and I mean that in the nicest way possible. This is the best vertical scrolling shoot-'em-up in ages. Possibly ever (A). **Raiden** would be a merely respectable translation of the delightfully combustible, vertically scrolling shooter had it been released for the A500. On the A1200, in the company of Banshee, it's positively pathetic (D). **Winter Olympics** ***(US Gold)*** includes a decent speed-skating sequence and a pair of so-so 3-D bits (bobsledding and slalom). But the remainder is given over to the same joystick-toggling, third-person sub-games that were tired (and tiring us out) five years ago (C-/D+). ■

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Tim tackles upgrading to 3.1, vanishing icons, early A4000 problems, and Amiga newsgroups.

HELP KEY

BY TIM WALSH

UPGRADE ANXIETY

Q. I want to upgrade my Workbench 1.3-equipped Amiga 2000HD, and ***Amiga-World*** *is my only remaining connection with this ever-diminishing pursuit. I can't walk into an Amiga shop any more, as they no longer exist in my area. Can you help?*

First, can I upgrade directly from Amiga-DOS 1.3 to 3.1? Will my old software work under the new OS? If not, will it be able to read my old files? And, can you tell me where I might find a real *Amiga guru?*

Diana Probus
McCook, Nebraska

A. Software compatibility is a common concern in jumping from 1.3 to 3.1. It's probably safe to assume you could install the new OS software and swap the new Kickstart ROM chip for the old, and, provided the installation goes well, all your current software should work fine.

However, insufficient chip RAM could cause problems with the new OS. First, you need to be sure that your A2000 has at least 1MB of chip RAM. If you're not sure, open a Shell window, type AVAIL, and press RETURN. The amount of chip and fast RAM will appear. If your system has only 512K of chip RAM, you might be able to use AmigaDOS 3.1, but may run into problems running some graphics-intensive applications. Several of the larger Amiga distributors might be able to upgrade your system with more chip RAM at a nominal cost.

Finally, it's tough for me to be objective, but I think *AmigaWorld* remains your best source of information. If anyone is aware of a better collection of gurus, please let us know!

DISSOLVING ICONS

Q. I recently purchased an Amiga 1200. After the machine has been on for 15 minutes or so, the icons on the Workbench start to "tear," and after about 30 minutes, the entire screen breaks up. I've tried different multi-sync monitors and screen modes, all with the same results. Is it a defective chip, or is something wrong with my copy of WB 3.0?

James A. Garrett
Peoria, Arizona

A. Let's hope the problem is not a bad chip. With the exception of the A1200's Kickstart ROM, all the motherboard chips are surface-mounted and soldered into place, and you cannot swap them easily. When a surface-mounted chip dies, it's cheaper to replace the motherboard, providing you can locate a replacement. Check Amiga mail-order companies for such a board.

It may not, however, be a bad chip. It could be a virus or a weakening power supply. Get a copy of a virus utility such as Virus Checker and run it. If it detects no virus, see if you can borrow a power supply to use with your machine. Leave it plugged in for a while and see if the problem continues. If it doesn't, you've found the culprit.

ANNIVERSARY SURPRISES

Q. My Amiga 4000 is equipped with 18MB of RAM, OpalVision and Implant cards, a CD-ROM drive, and three hard drives. One year after purchase, the motherboard died. Or at least that's what the technicians who fixed it told me. At the time, it had 6MB of RAM, OpalVision, and the original 120MB hard drive.

One year later, the computer has seized up again, and the motherboard is deemed responsible. Have you heard of any design flaws on the A4000? The technicians from two different dealerships discounted the items that I've added as causing the problem. My machine's serial number is 000821.

Abel Rodriguez
Glen Oaks, NY

A. I've checked with numerous sources, but no one seems to know of any problems with motherboard failure in early versions of the A4000. I also have the original, early-revision motherboard in mine, and (knock on wood) have swapped all manner of cards and devices in and out of it without any ill effects.

Although it's unlikely, the Opal-Vision card might be the culprit. More likely, it is power related. Power surges, static in the carpeting, or unplugging and plugging in components while the machine is on are all possible causes. If you don't have one already, get a surge protector.

AMIGA NEWSGROUPS

Q. Do you know of any Amiga newsgroups or World Wide Web sites on the Net. I would appreciate any info.

Wes McCoy
wesmac@hooked.net

A. On the Usenet newsgroups, computers are broken down by type. If you go to comp/sys and list the major newsgroups, you'll see four Amiga newsgroups: alt.sources.amiga, comp.binaries.amiga, comp.sources.amiga, and comp.sys.amiga. The first three are conference areas, while comp/sys/amiga is a true newsgroup. You'll see that it's broken down into 17 conferences, ranging from advocacy to reviews. The one that seems to get the most traffic is comp.sys.amiga.misc, which is a general discussion area.

Another interesting conference is comp.sys.amiga.marketplace, which lists Amiga hardware and software for sale—a lifesaver if you're seeking a particularly tough-to-find component.

There are roughly a dozen popular Amiga FTP sites, and a WWW site is reportedly under construction. Don't overlook the Internet's Aminet site as a source of files. And GEnie has set up an Aminet OnTap option, which treats users of its Amiga Roundtable to new uploads retrieved from Aminet on nearly a daily basis. ■

Send your questions to Help Key, c/o ***AmigaWorld*** *Editorial, 80 Elm St., Peterborough, NH 03458.*

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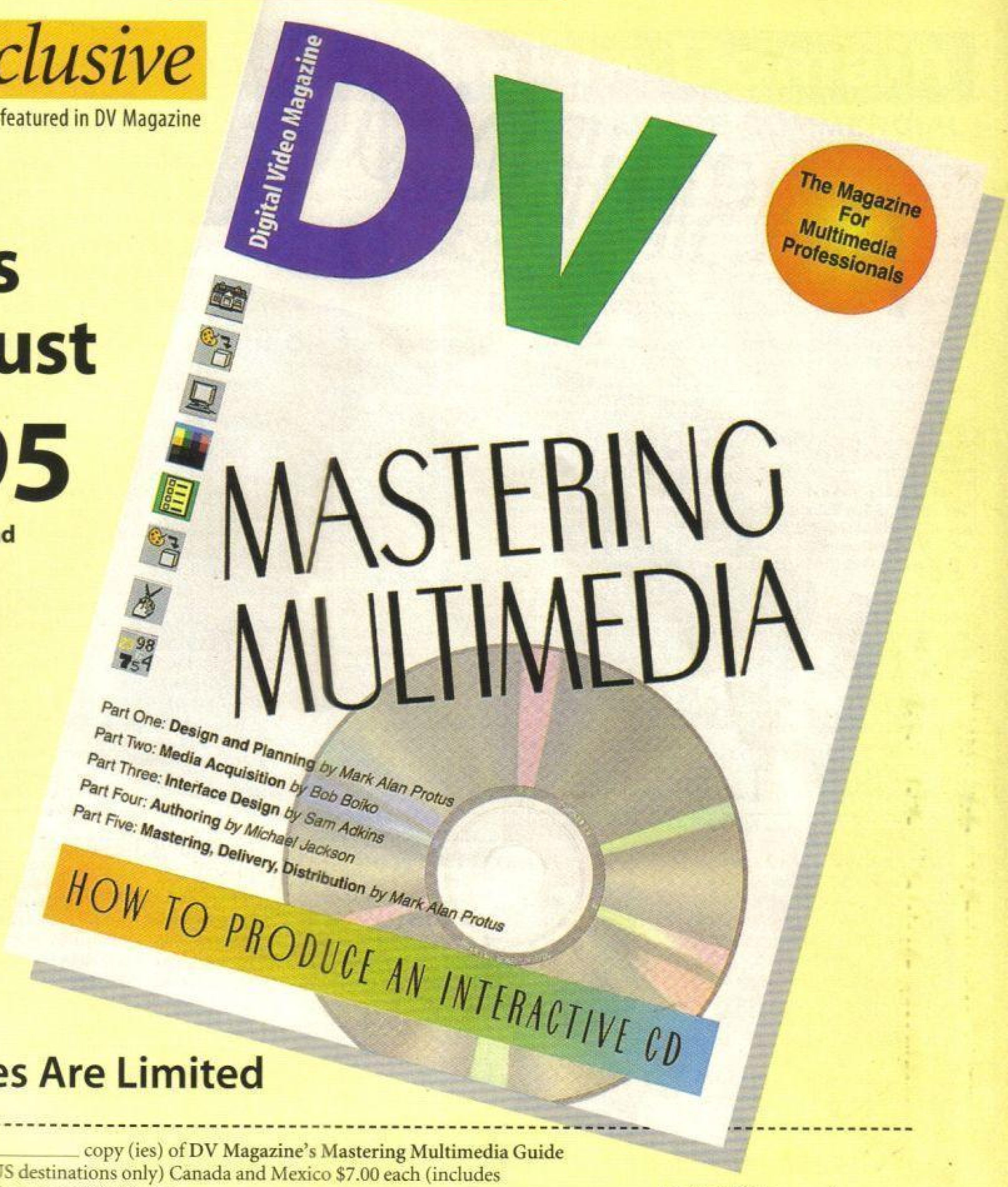
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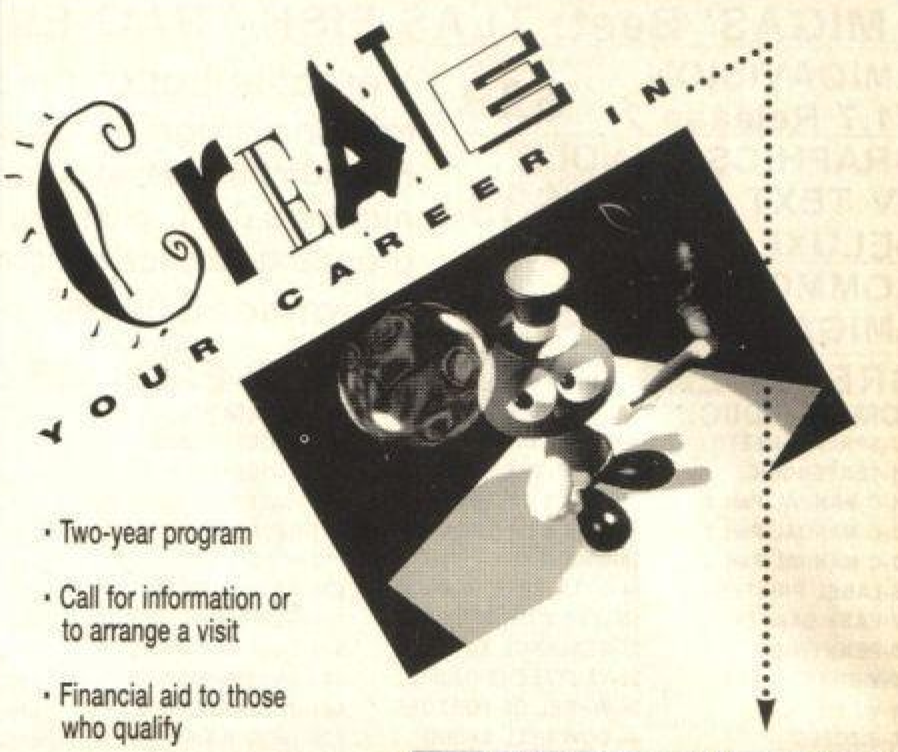

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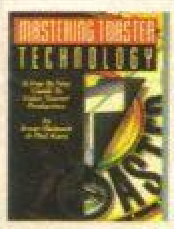

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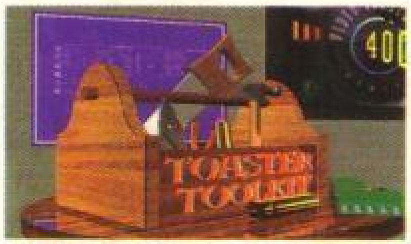

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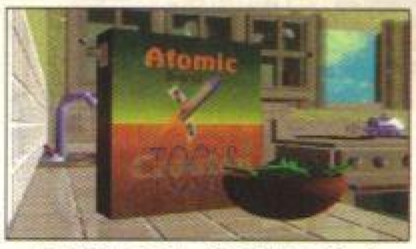

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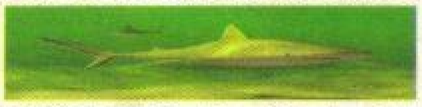

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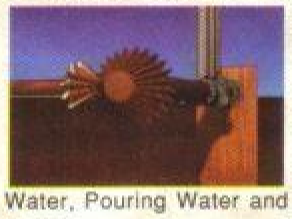

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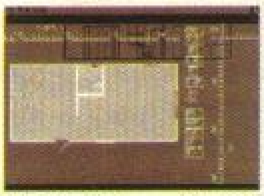

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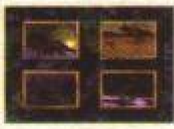

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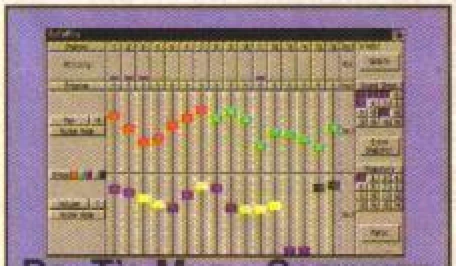

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ENLAN-DFS is the ideal network software for turning your Amigas into powerful, integrated workgroups, whether it's two, twelve or two hundred systems! **ENLAN-DFS** is easy to install and use, and is transparent to your application software. T5096

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MultiFaceCard III Add 2 serial and 1 parallel port to any Amiga 2000, 3000 or 4000 T5239 **$84.95**

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Mega Mouse 400 DPI replacement mouse for all Amigas T5243 **$27.95**

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THE LAST WORD

Kudos, complaints, comments, concerns, and contributions from our readers.

Happy Birthday, Amiga!

Ten years ago, Jay Miner designed a computer that was truly a user-friendly machine. Now, the Amiga has made possible advances in animation and special effects that have expanded the boundaries creativity into realms never before imagined. From the bouncing ball to *Deep Quest*, from the Juggler to the *Lion King*, the Amiga's combination of simplicity, cost-effective hardware, multitasking, and graphics firepower has made it the most widely used computer in media today. Jay Miner would be as proud of his offspring as are we Amiga users.

Daniel Rush
Camp Pendleton, California

Honestly, Now, Mac and IBM . . .

As a longtime Amigan, I find myself constantly defending my computer to Mac and PC users who denounce Amigas without really knowing much about them. My explanations of what I've learned from Amiga experts featured in *AmigaWorld* totally fails to impress them. So I would very much like to know what Mac and IBM authorities would have to say about the Amiga. Could you invite an expert from each of the other two camps to thoroughly and honestly evaluate our computer and operating system? Hopefully, that would give us all a little more ammunition to use against those people who think the sun rises and sets on Windows and System 7.

Eric T. Anklin
Tecumseh, Michigan

Help for a Three-Button Mouse

If you have a three-button mouse or are planning to get one, there's a giftware utility by Roland Janus that you might find helpful. It is MMBCommodity v1.0, and it is on Fred Fish disk #991. Binary only and requiring OS 2.0, it offers, among other things, near-free definition for the midbutton and more qualifiers for the right button.

Patrick Kellum
Beatty, Nevada

Hanging In There

In my increasing frustration with the Commodore debacle, I decided it was time to do something. That something, of course, is to stop sharing my coworker's copy of *AmigaWorld* and to express my support, in dollars, for your fine publication. I grieve along with you and ask you to hang in there with all of us.

> ***I expect that this dithering has shot the Bahamians in the foot and that it will cause bankers to pressure companies to avoid this quagmire by not registering there.***

I am a professional video producer, and I have learned most of what I know about the Amiga from your pages. You have been an excellent teacher. In these times of trouble, you have also been very informative with your hotline.

Please accept my subscription as another devoted Amigan putting his money where his heart is!

Paul Lara
Temple, Texas

It's remarkable that *AmigaWorld* is hanging in there, still publishing nine months after Commodore folded, weathering the reduced advertising, and still giving readers good value. The Final Deal must be just around the corner, and after the dust settles, it would be interesting to read some anecdotes about the whole scenario of living in "Bahamian time." I expect that this dithering has shot the Bahamians in the foot and that it will cause bankers to pressure companies to avoid this quagmire by not registering there, even though there may be legal advantages.

Keep up the good work . . . I plan to renew my subscription.

Bob Evans
St. Thomas, Ontario

Heartfelt Wishes

In response to your March editorial requesting suggestions as to the Amiga's future direction, my most urgent hope is that the new owners continue to support the A500 and 3.1! Granted that we live in a world of bigger, better, and faster, but getting caught up in this mentality means constantly plunking down more and more hard-earned dollars to upgrade to the best of the newest.

I operate a home-based, custom graphic-arts/desktop-publishing business. We bought our first A500 in 1988 and our second in 1992. With the addition of only a hard drive, these machines have met all the needs of our home and my business. Unlike my husband's IBM-PC at work, our Amigas have never needed a service call.

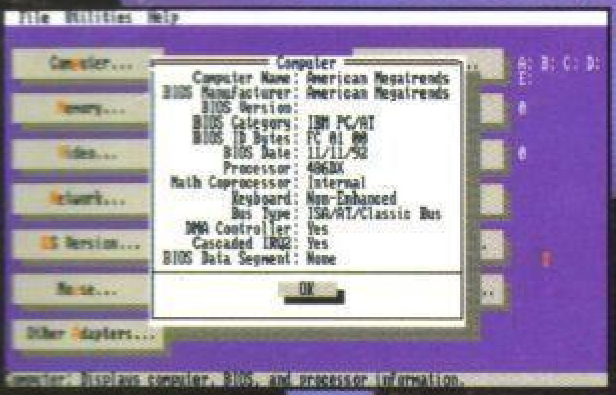
The A500 is an extremely reliable workhorse that pumps out my brochures, advertisements, graphic designs, bookkeeping, correspondence, and more. Granted, it's not as fast as the A4000, but it does everything I need—and its low maintenance costs and affordable quality software allow me to keep my prices reasonable.

I love my Amiga! Please continue to produce Amigas, support them, and improve them. It would be a giant step backwards to let this wonderful machine die.

Dawn Svalberg
Pinedale, Wyoming ■

EMPLANT

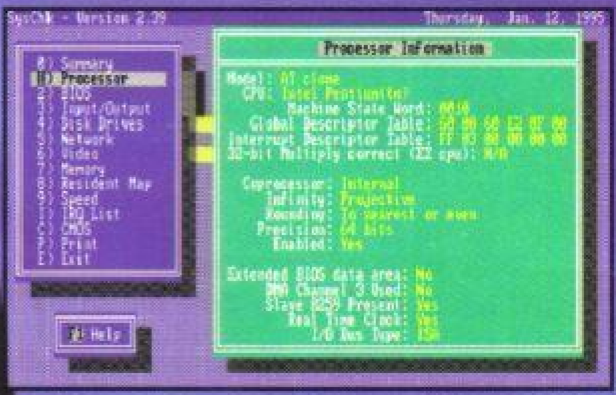
The World's First Multi-Platform Emulation System!



```
File  Utilities  Help
                    Computer
         Computer Name: American Megatrends
     BIOS Manufacturer: American Megatrends
          BIOS Version:
         BIOS Category: IBM PC/AT
         BIOS ID Bytes: FC 01 00
             BIOS Date: 11/11/92
             Processor: 486DX
      Math Coprocessor: Internal
              Keyboard: Non-Enhanced
              Bus Type: ISA/AT/Classic Bus
        DMA Controller: Yes
         Cascaded IRQ2: Yes
     BIOS Data Segment: None
                          OK
Computer: Displays computer, BIOS, and processor information.
```

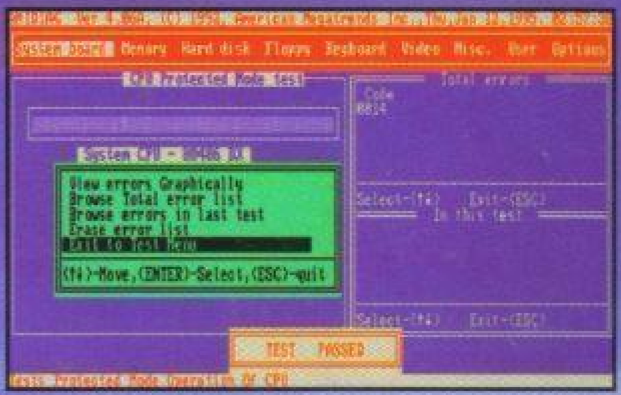
Computer...
Memory...
Video...
Network...
OS Version...
Mouse...
Other Adapters...
A: B: C: D:
E:

MicroSoft's System Diagnostic



```
SysChk - Version 2.39                    Thursday, Jan. 12, 1995
                         Processor Information
 0) Summary       Model: AT clone
 1) Processor       CPU: Intel Pentium(tm)
 2) BIOS                    Machine State Word: 0010
 3) Input/Output        Global Descriptor Table: [illegible]
 4) Disk Drives      Interrupt Descriptor Table: [illegible]
 5) Network     32-bit Multiply correct (22 cpu): N/A
 6) Video
 7) Memory            Coprocessor: Internal
 8) Resident Map         Infinity: Projective
 9) Speed                Rounding: To nearest or even
 I) IRQ List            Precision: 64 bits
 C) CMOS                  Enabled: Yes
 P) Print
 E) Exit          Extended BIOS data area: No
                       DMA Channel 3 Used: No
                        Slave 8259 Present: Yes
                           Real Time Clock: Yes
 F1 Help                       I/O Bus Type: ISA
```

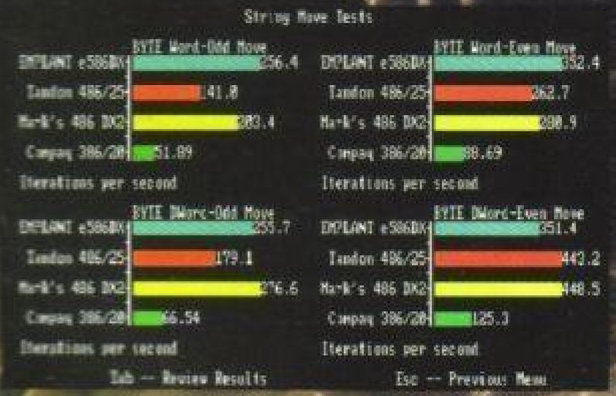
Support for 586DX technology!



```
System board  Memory  Hard disk  Floppy  Keyboard  Video  Misc.  User  Options
                                              Total errors
                                               Code
                                              0014
   View errors Graphically
   Browse Total error list
   Browse errors in last test
   Erase error list
   Exit to Test Menu
   (↑↓)-Move,(ENTER)-Select,(ESC)-quit       Select-(↑↓)   Exit-(ESC)
                                                  In this test

                                             Select-(↑↓)   Exit-(ESC)
                       TEST   PASSED
```

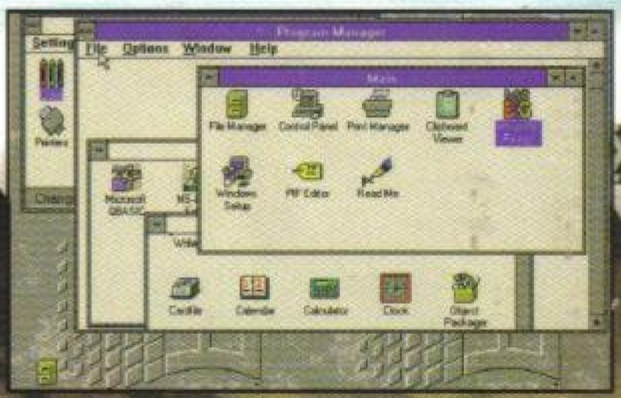
Protected & Virtual Mode support!



PC Emulation can be *FAST*!

DOOM II
New Game
Options
Load Game
Save Game
Quit Game
AMMO
HEALTH
ARMS
ARMOR

Played any good games lately?


Program Manager
File Options Window Help
Main
File Manager
Control Panel
Print Manager
Clipboard Viewer
Windows Setup
PIF Editor
Read Me
Cardfile
Calendar
Calculator
Clock
Object Packager

MicroSoft Windows on your Amiga!

Image Rendered with EMPLANT running KPT Bryce! ©1994 By Jim Drew

Ɛ586DX℠ Emulation Module

We have added the next generation CPU instruction set! The Ɛ586DX emulation module offers a high speed 586DX (FPU, MMU, and new instruction set) emulation with complete low-level architecture support, giving you the ability to run virtually all PC compatible software! Support for MDA, CGA, EGA, VGA, SVGA video modes, sound, hard drives, CD-ROM drives, SCSI devices, joysticks, floppy drives, and more!

Macintosh® Emulation Module

The Macintosh emulation module is a 'generic' Macintosh with the speed of the emulation depending on the processor your Amiga is using. An A3000 is equivalent to a MAC IIci. An A4000 is equivalent to a Quadra 900. Support for up to 16 colors is provided for non-AGA machines. A4000 owners can use a full 256 colors! Up to 24 bit (16 million+) colors is supported using 3rd party video boards such as: Picasso II, EGS-Spectrum, Vivid-24, Rainbow II, Rainbow III, Visiona Paint, Merlin, Retina, Retina Z3, Piccolo, EGS110/24, and OpalVision! Built in multiple file transfer allows for quick, easy transfers between the Amiga and MAC emulation.

Utilities Unlimited International, Inc.

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(602) 680-9004 24hr order line
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-28.8K)

Four different versions of EMPLANT are available, ranging in price from $279.95 to $399.95

Ɛ586DX module - $99.95 (Requires base EMPLANT system.)

All emulation modules require an Amiga with Zorro II slots, and a 68020 (or later) CPU.

DEALER INQUIRES WELCOME!

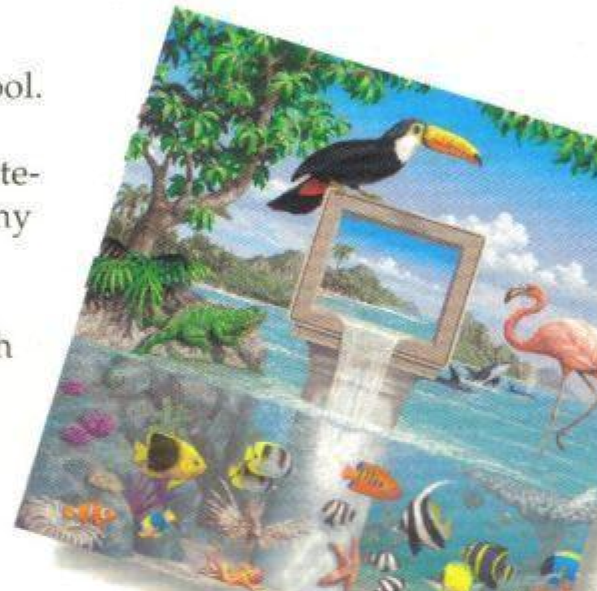
New!

BRILLIANCE 2.0

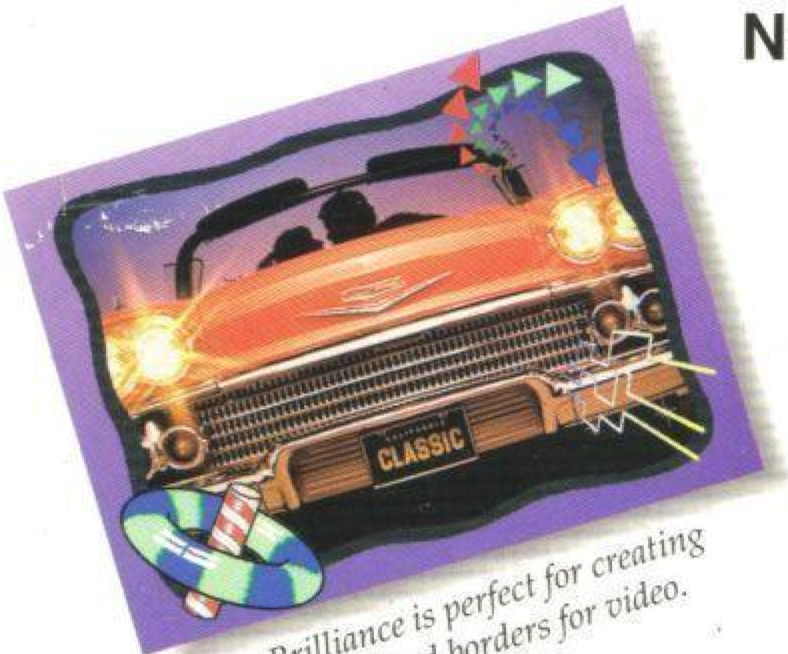
Toaster Users -
Add real-time 2D
animation to your videos

The FASTEST Paint and Animation for the Amiga

Brilliance 2.0 is the Amiga's most powerful paint program and a sophisticated 2D animation system combined into one breakthrough tool. The award-winning creators of DeluxePaint ST, Deluxe PhotoLab and DCTV Paint dedicated over three years to one goal... redefining the state-of-the-art. The result is simply the best graphics tool ever created for any computer. If you're still using DeluxePaint IV, get your hands on Brilliance 2.0. It's fast... *real fast*, and it's got higher resolution, better anim tools, dozens of swap screens*, true 24-bit editing, powerful brush manipulation, and multiple Undo/Redo levels (just for starters). Upgrade today to the ultimate paint and animation system.



"Lagoon" by Jim Sachs



Brilliance is perfect for creating animated borders for video.

New low price
$99.95

- *"If you can afford only one paint program for the Amiga, this is the one to buy"* - AmigaWorld
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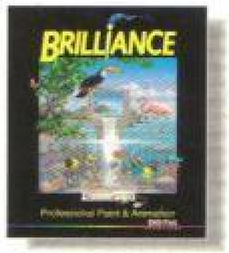
- *"Nothing out there can match it"* - Amiga Computing
- *"The best art package available for the Amiga"* - C U Amiga
- *"the Amiga's premiere paint package"* - Amiga Shopper
- *"Excellent!"* - Amiga Format

LIMITED TIME OFFER

Upgrade Any Paint Program to Brilliance 2.0

Upgrade only $49.95

Credit Card and COD orders, call today - have your old paint program's manual handy.
Overnight delivery available.



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